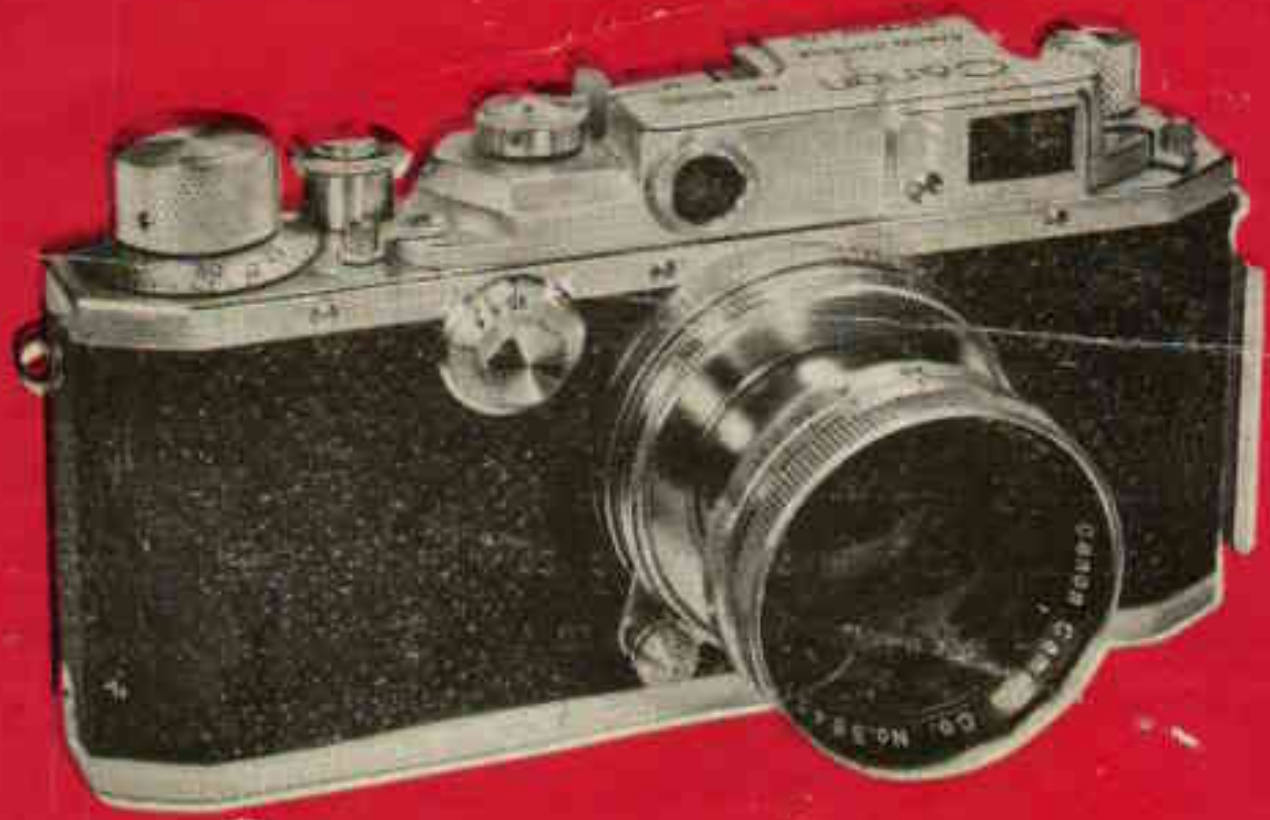
Directions for using

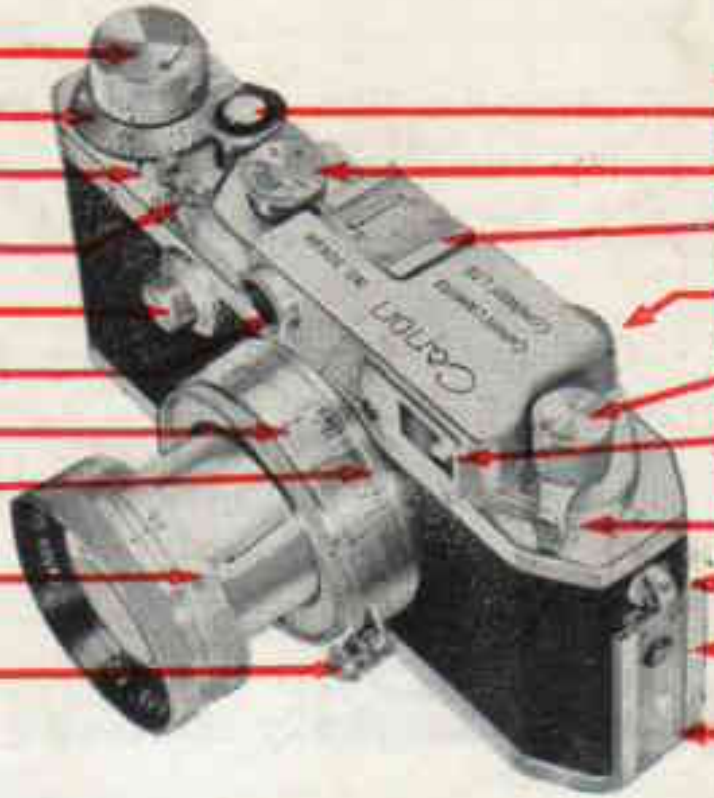


Canon

Model IV

The "CANON" Camera you have just purchased is a precision camera with an exquisite "SERENAR" lens made from selected materials by our master craftmen, and both the body and lens have undergone a series of strict optical and mechanical inspections to insure reliable and efficient performance. Careful handling and intelligent use is highly recommended in order to obtain excellent service and perfect photographic results. Before loading your camera with film various mechanical movements should be practiced through instructions given in this booklet. These instructions, although written primarily for "CANON" Camera Model IV, can be applied to all former models as well; such as Model J, S, S-II, II-B and III.

C 4/21-105



1 Winding Knob
2 Exposure Counting Dial
3 Exposure Counting Index
4 Rewinding Lever
5 Slow Shutter Speed Dial
6 Rangefinder Window
7 Distance Scale
8 Depth of Field Scale
9 Iris Disphragm Scale
10 Lens Focusing Lever

11 Shutter Release Button
12 High Shutter Speed Dial
13 Accessory Clip
14 Range-View Finder Eyepiece
15 Rewinding Knob
16 Range-View Finder Window
17 Range-View Finder Magnification Selector
18 Eye for Neck Strap
19 Terminal
20 Flash Unit Mounting Bracket

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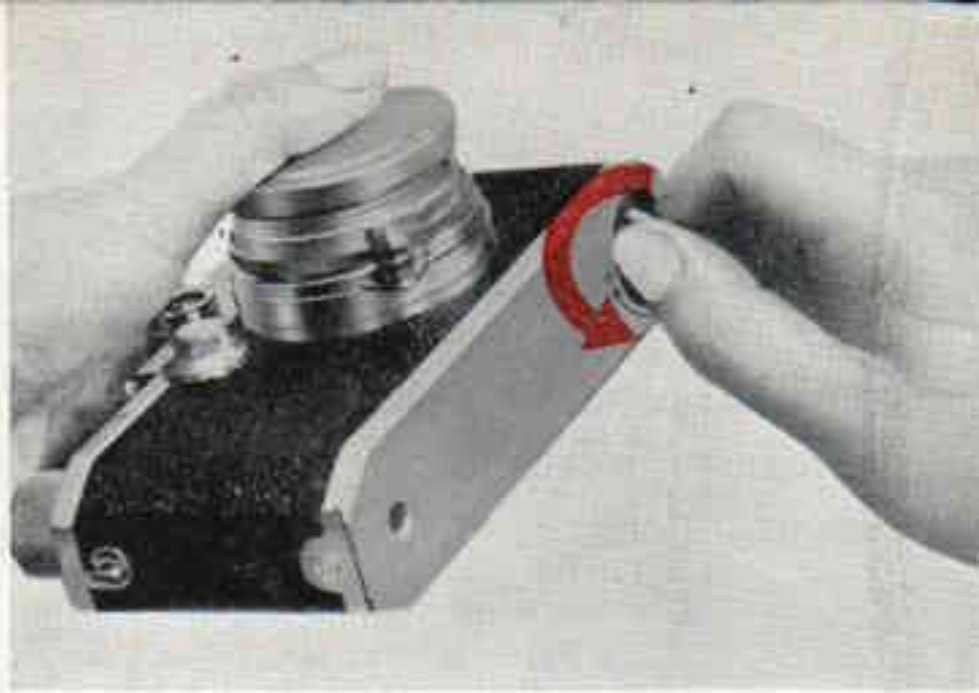
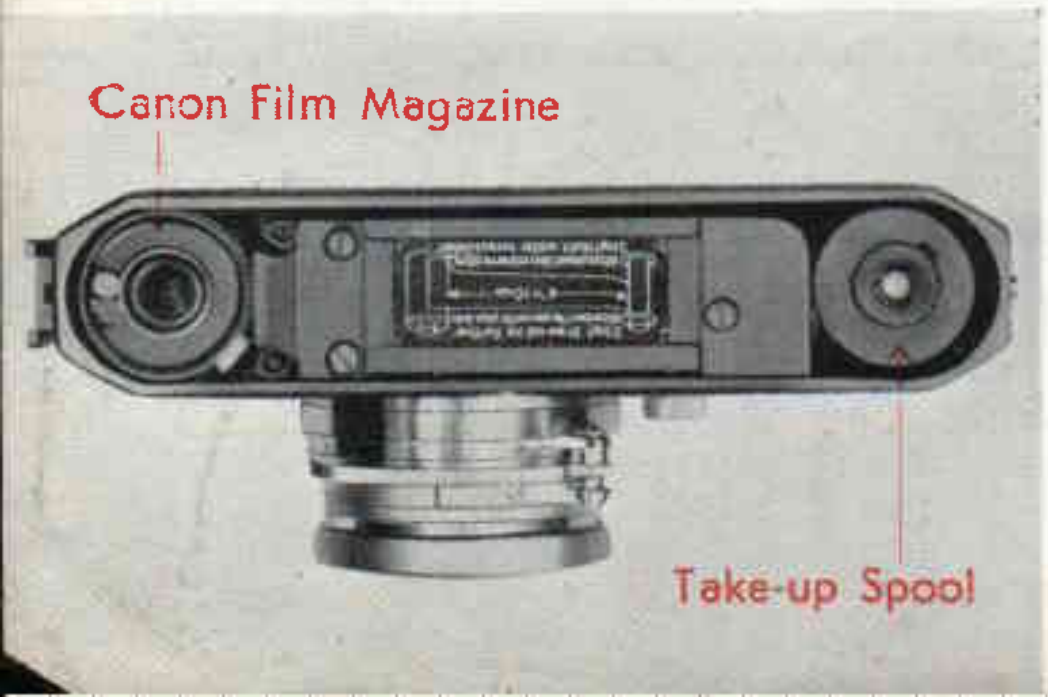
1 FILM LOADING

Open the Baseplate by giving the Lock Knob a half turn from "Close" to "Open", and pull out the Take-up Spool and the Canon Film Magazine.

Loading the Canon Film Magazine with 35 mm film is illustrated on pages from 35 to 38.

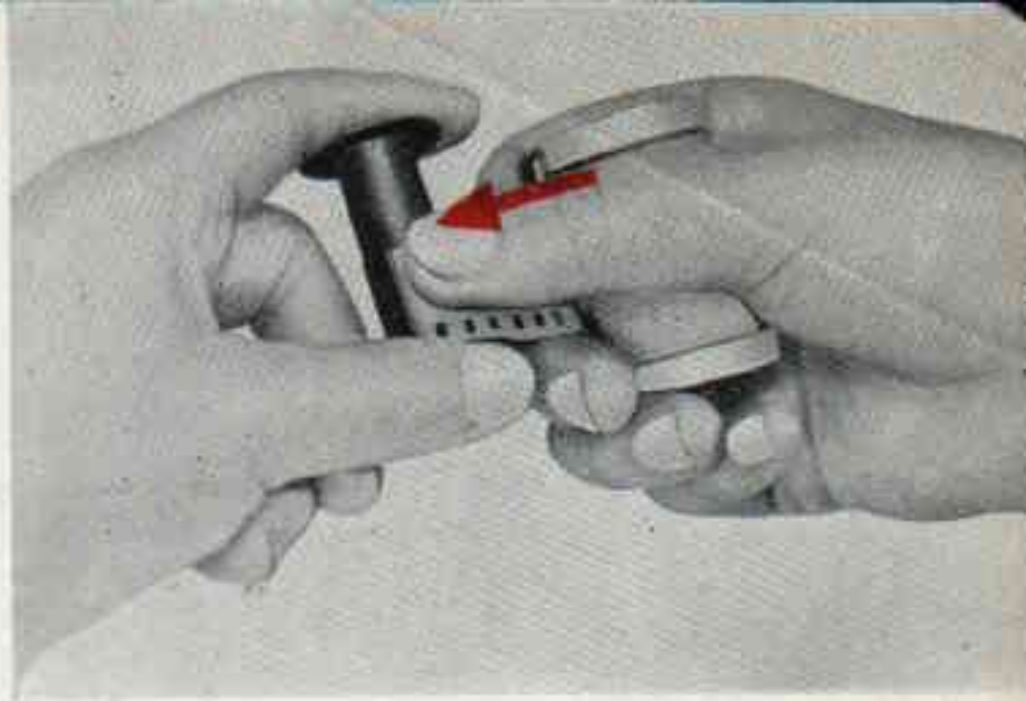




The Canon camera can be loaded with 35 mm Daylight Loading Cartridge of any make commercially available. If desired, however, to use 35 mm bulk film the Canon Film Magazine should be utilized.

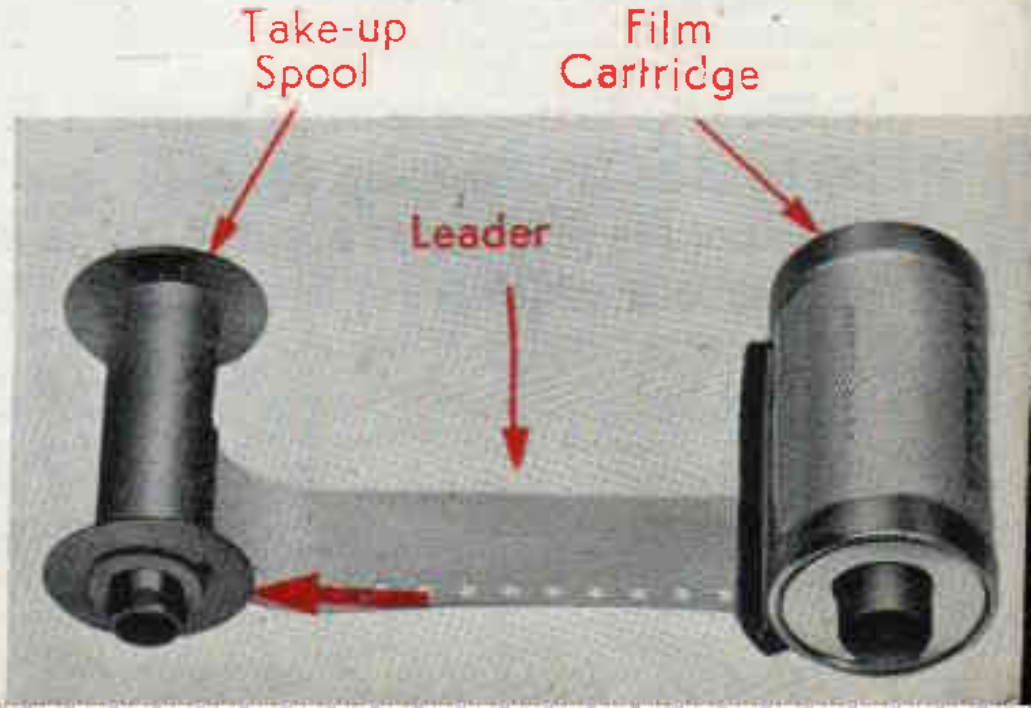
The loading should be done in subdued daylight and it is advisable to keep the lens cap on.

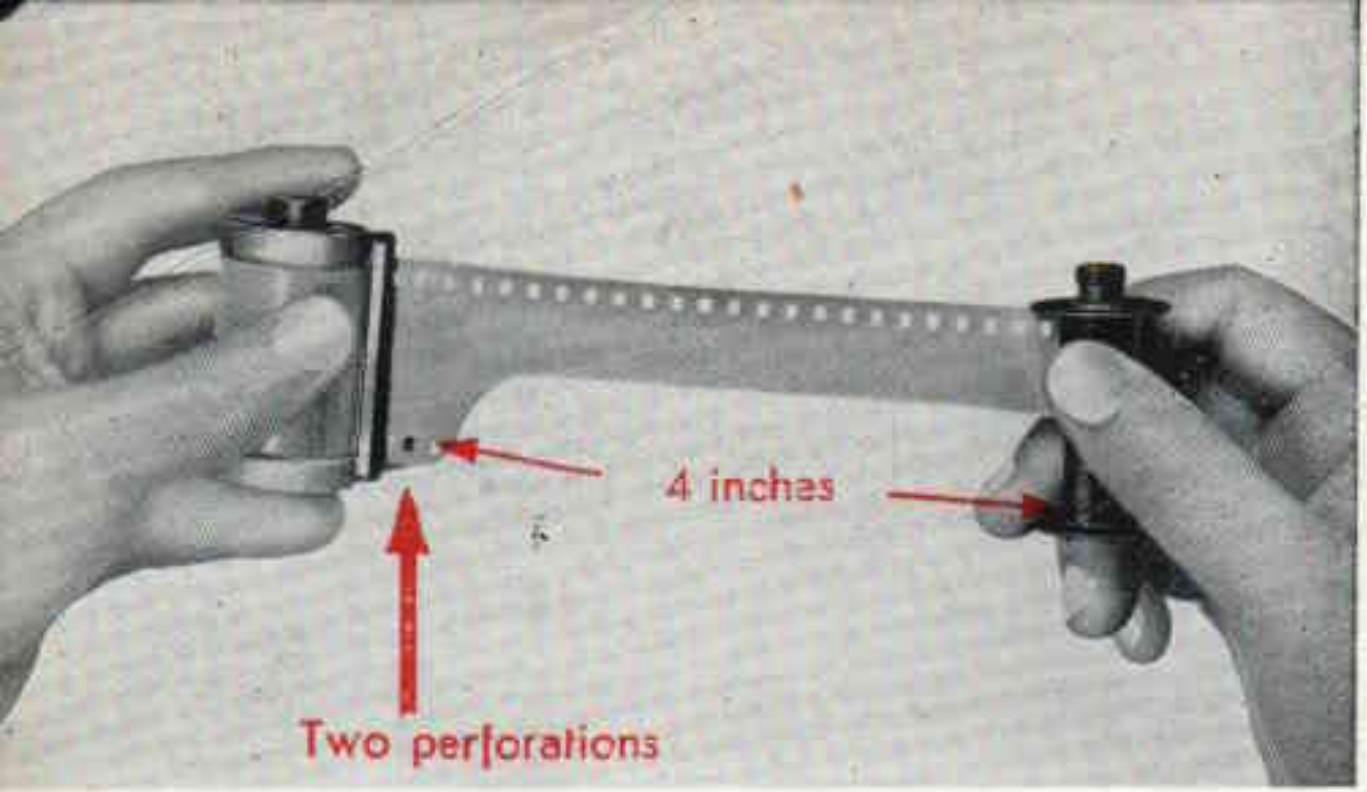
Slide the ready-cut leader end of the film under the clip of the Take-up Spool, facing the glossy side of the film towards the spindle of the spool, and then push in about two perforations by pressing it against the spindle with your thumb.



Make certain that the perforated edge of the film lies flush with the flange of the spool.

Do not wind film around the spindle of the spool.



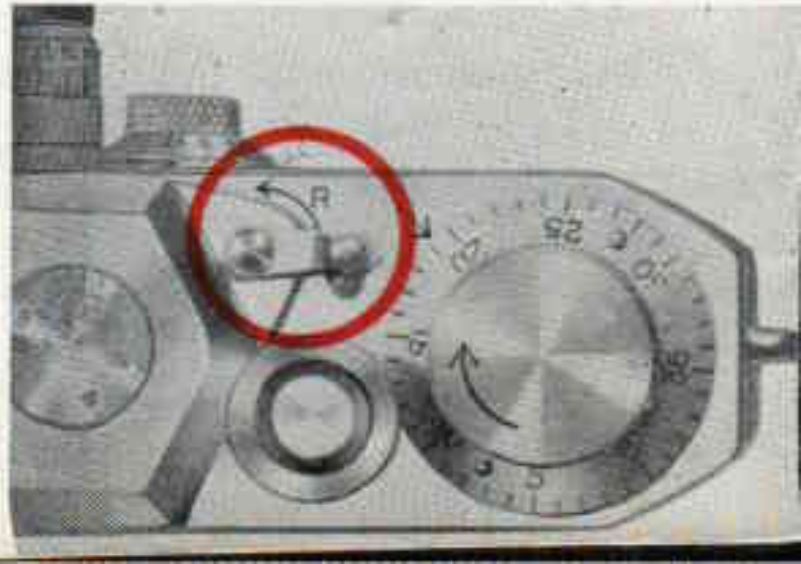


The Rewinding Lever should be kept in A(advance) at all times.

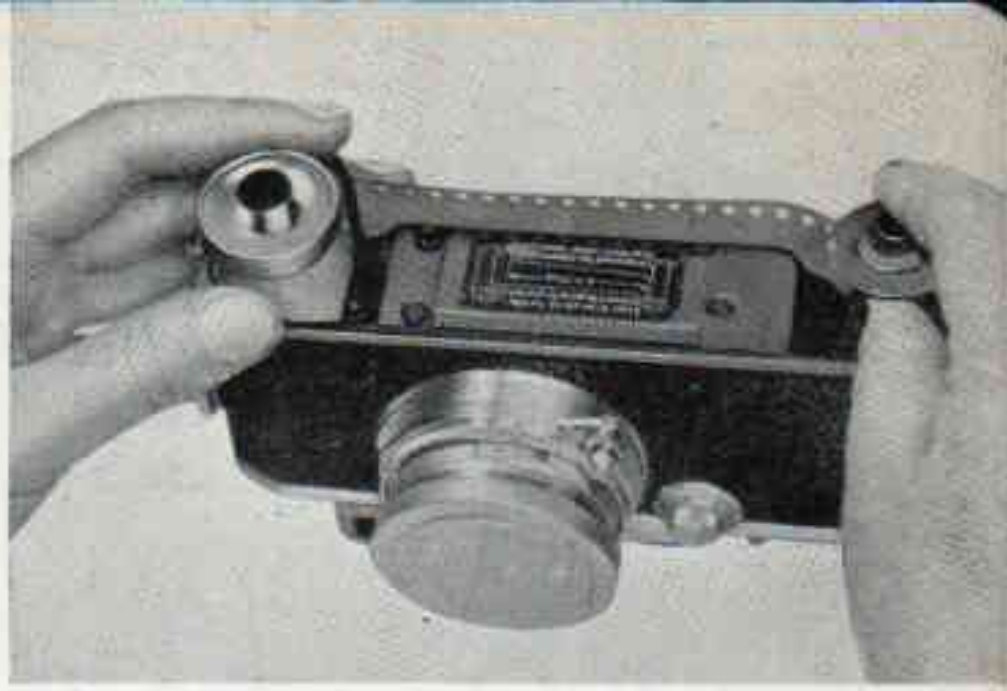
This Lever is shift to **R** (rewind) only when rewinding the film into its original cartridge or magazine.

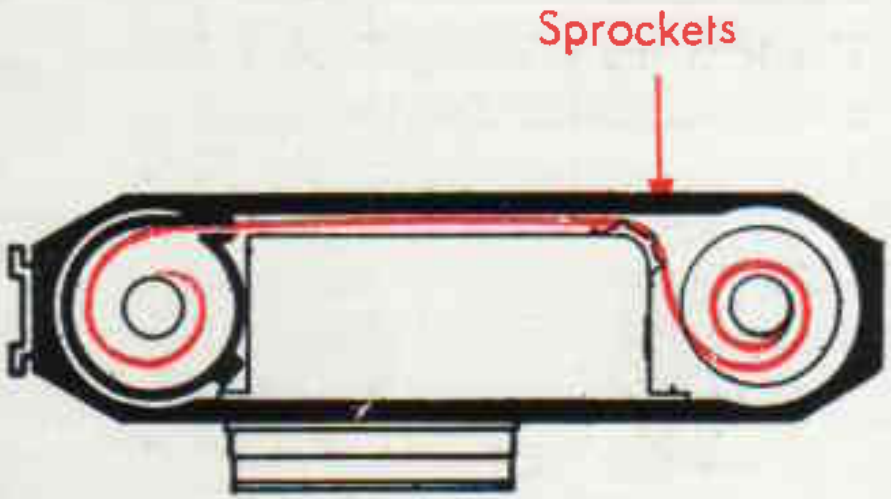
Holding the film magazine or cartridge in your left hand and the Take-up Spool in your right, draw out the film leader about 4 inches or two perforations which is sufficient for loading.

Film leader drawn out more than necessary is the main cause of difficult loading.



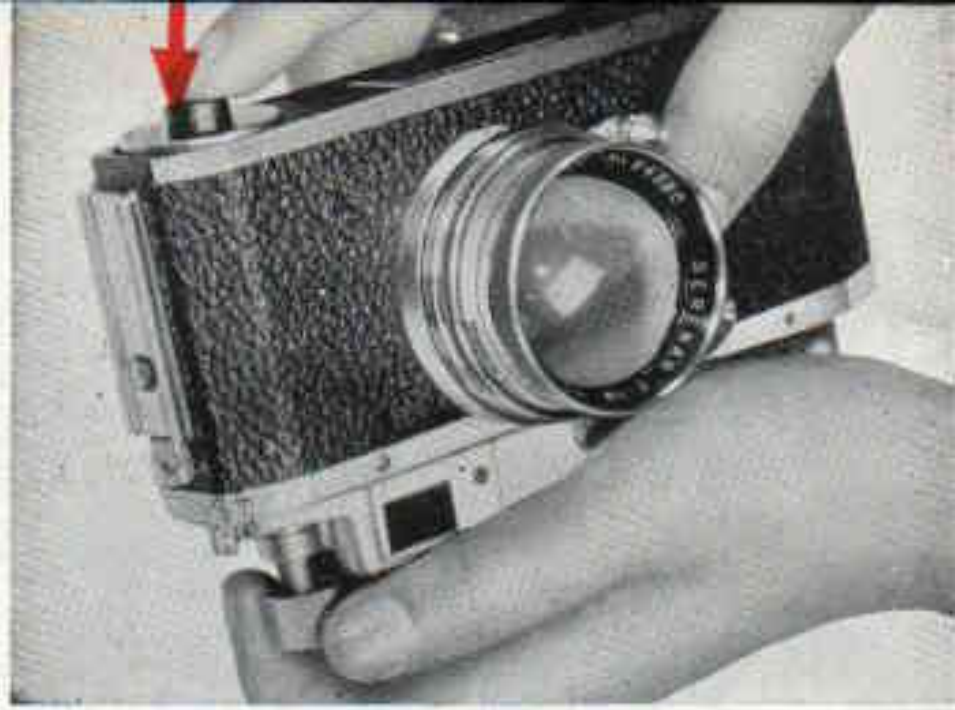
Insert both the film magazine or cartridge and the Take-up Spool gently all the way down into their proper chambers, facing the emulsion (dull) side of the film towards the lens.





The red line indicates the film path when properly loaded.

Pull out and turn the Rewinding Knob slightly while pushing the magazine or cartridge down so as to make sure that it will be seated properly into the fork in the magazine chamber.



The turn the Winding Knob a little and make certain that the *sprockets catch the perforations* of the film.

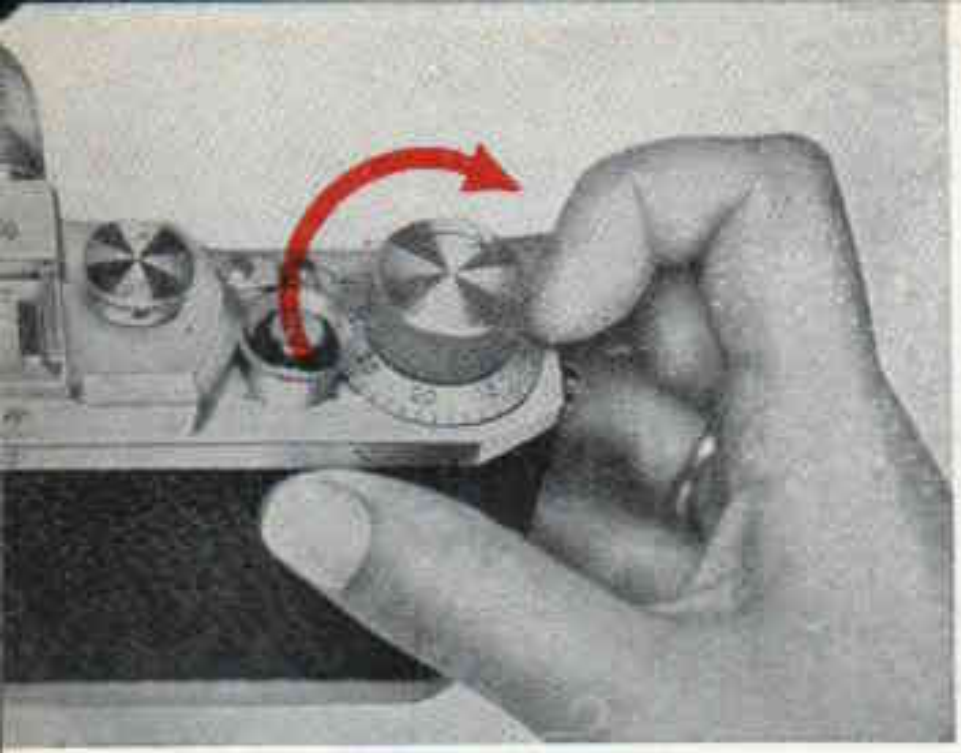
Not correct

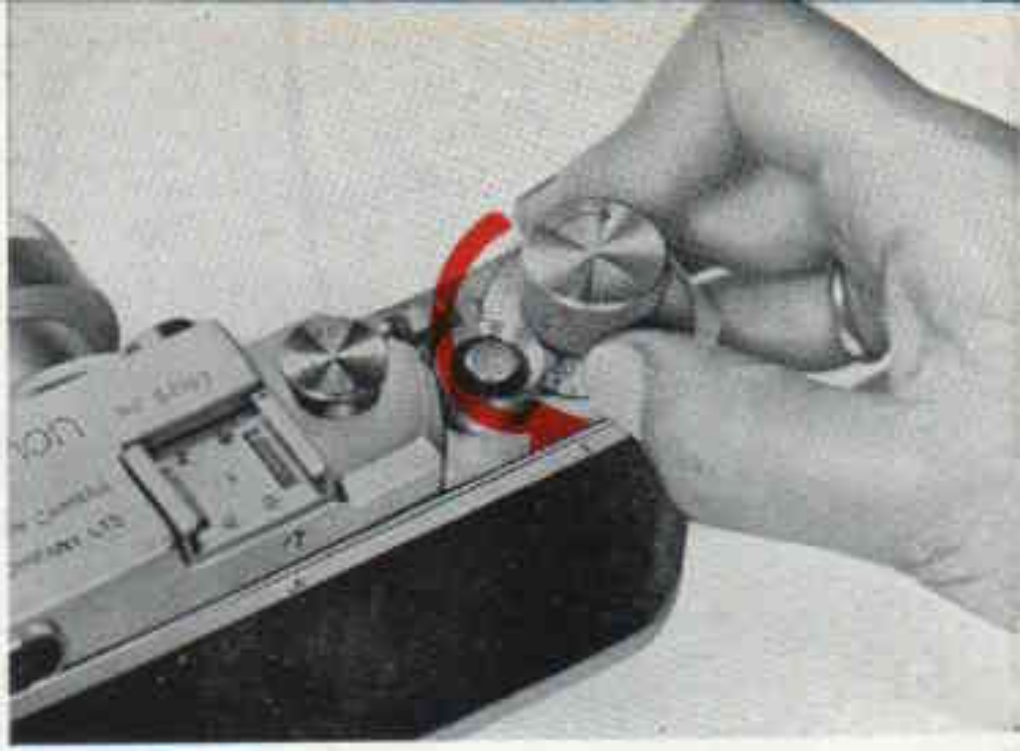
Correct

Now replace the Baseplate by hooking on to the lug and turn the Lock Knob back to "Close".

Raise and turn the Rewinding Kuob towards the direction of the arrow until hard stop is felt in order to tighten the relaxed film in the magazine or cartridge.

Once the camera is properly loaded the Baseplate should never be opened until the total roll of film has been used and the film rewound into its original magazine or cartridge.





Turn the Winding Knob and release the shutter *two times* in order to advance the exposed portion of the film during in loading. Prior to the second releasing of the shutter, set the Exposure Counting Dial to zero (0) by turning it in either direction with your fingernail, catching one of the lugs on the dial.

The Exposure Counting Dial should never be moved once it is set until a new film is loaded.

NOTE : Each time the Winding Knob is turned the Rewinding Knob rotates in a reverse direction. This indicates that the film is properly passing to the Take-up Spool for the next exposure. If this, however, is not the case the film leader should be wound off the Take-up Spool and the film reloaded by closely following the same routine explained in the foregoing pages.

The leader can be prevented from drawing completely into the cartridge by stopping the rewinding motion as soon as the revolving of the Shutter Release Button ceases.

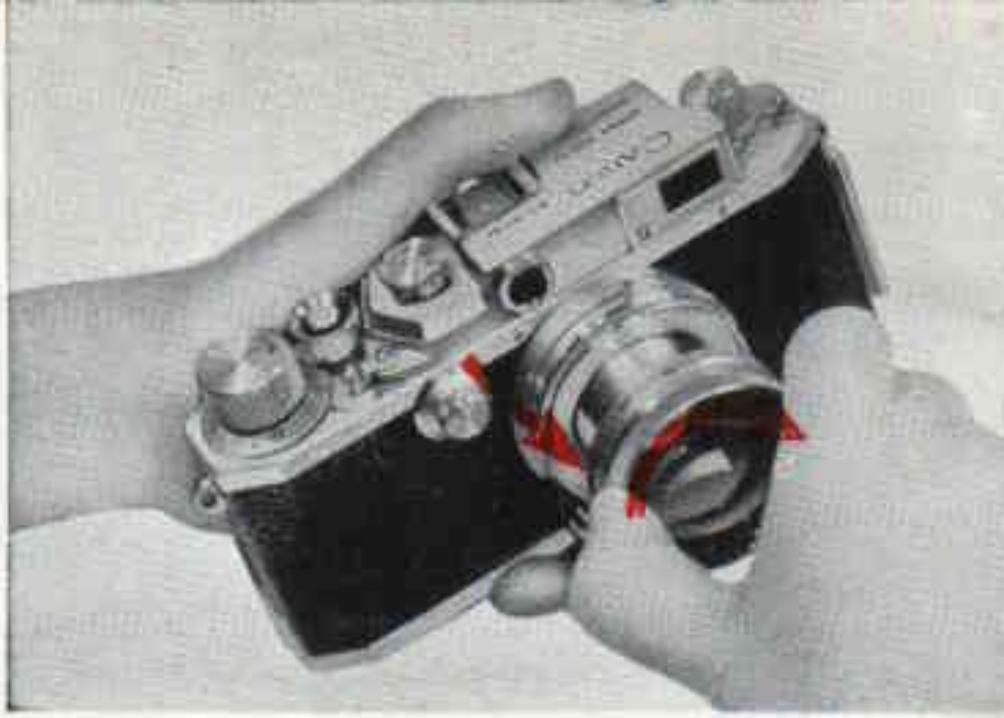
II HOW TO TAKE PICTURES

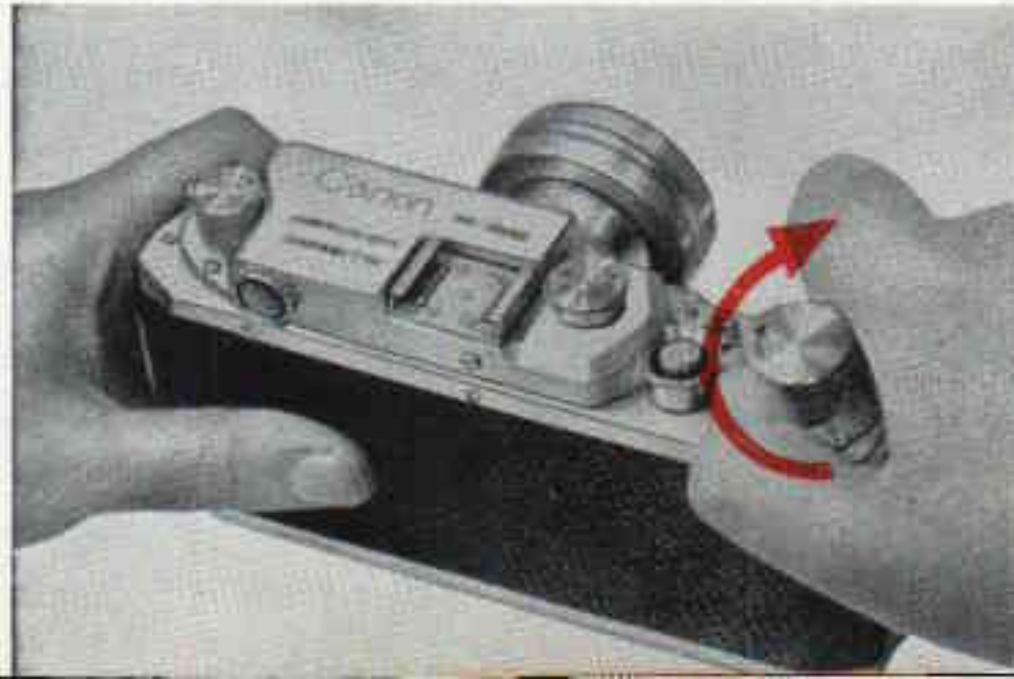
Take the Lens Cap off. Holding the front milled ring, pull the Lens Barrel *straight* all the way out and lock it into position by gently turning to the right until you come to a stop.

Canon "Serenar" lenses with focal length of 50 mm are of collapsible type. When not in use the Lens Barrel should be unlocked and pushed back into the camera body.

Turn the Winding Knob *one compete turn* until it stops.

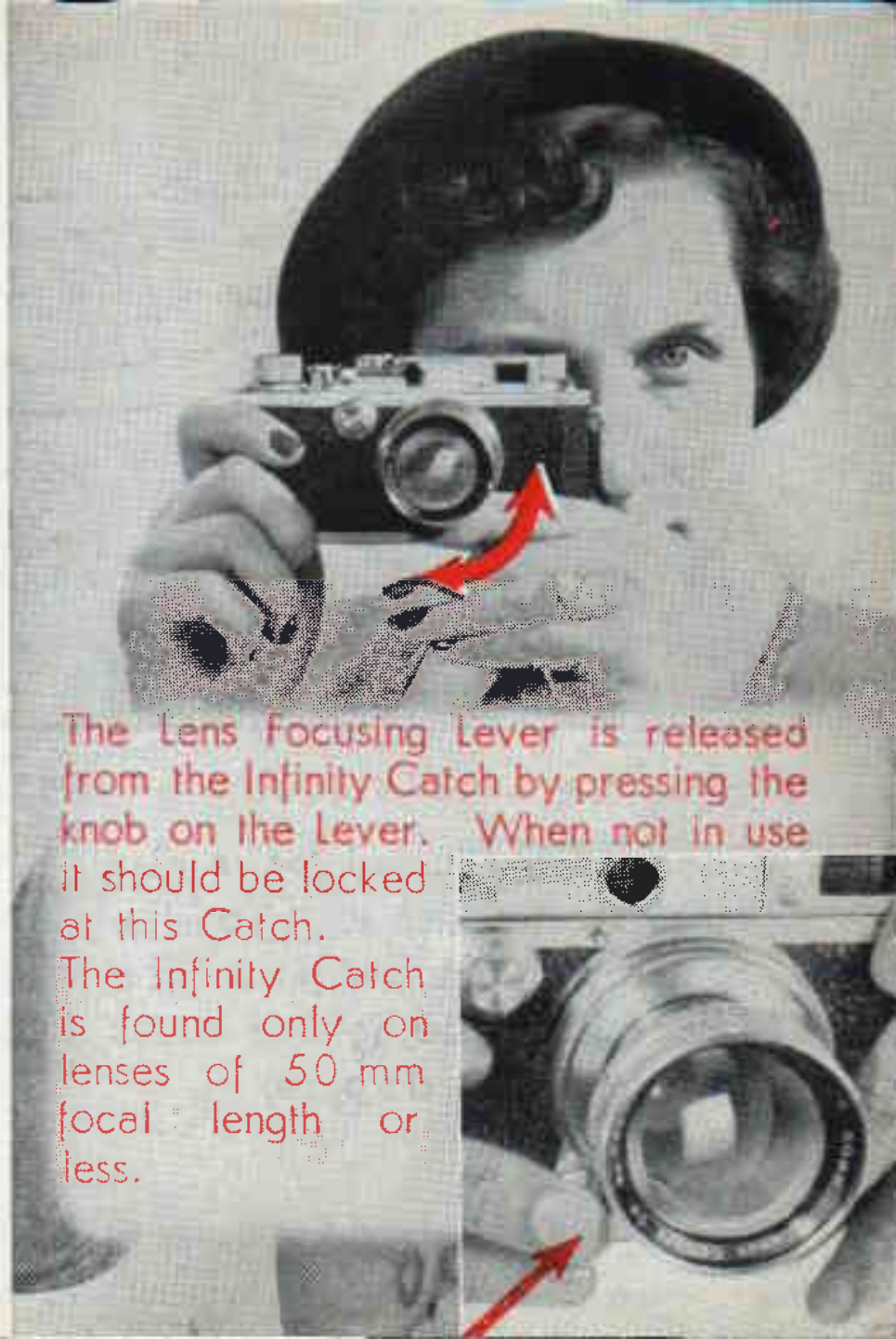
Each time the Winding Knob is turned the Exposure Counting Dial automatically registers the exposures.



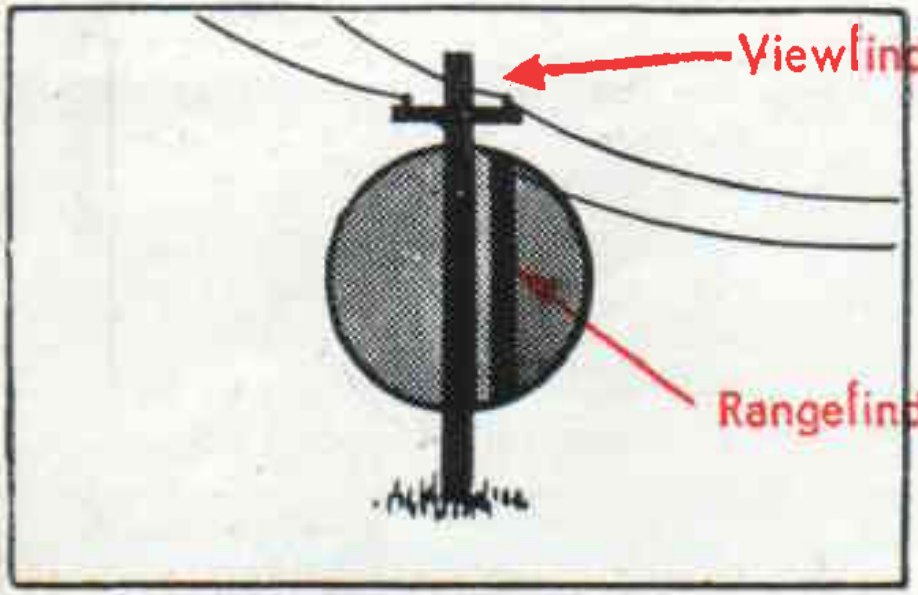


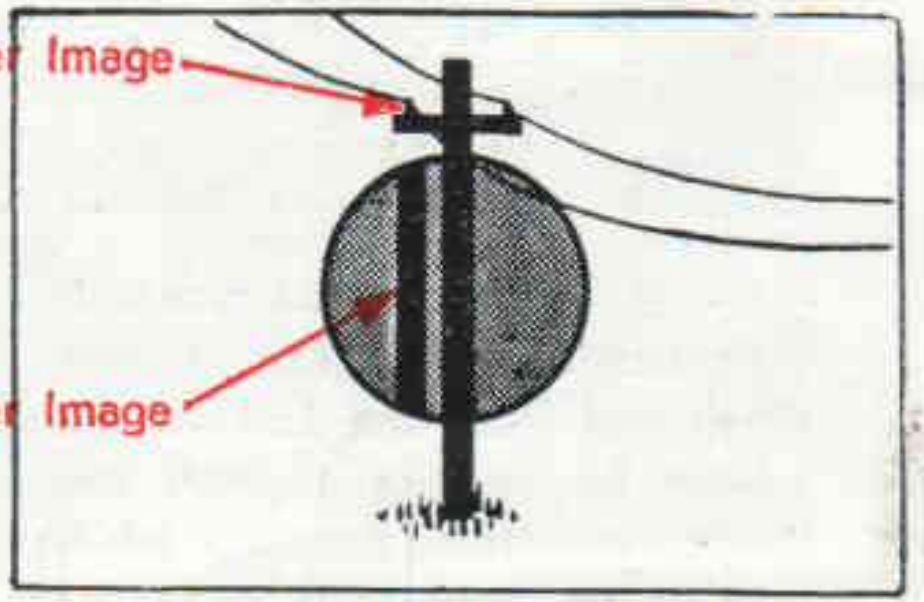
Focusing Holding the camera with both hands, pull it against your cheek and focus the lens to the subject by sighting through the Range-View Finder Eyepiece while rotating the Lens Focusing Lever with your left fore-finder until the two images coincide.

Various focal length of Canon "Serenar" lenses are interchangeable and couple with the Rangefinder.



The Lens Focusing Lever is released from the Infinity Catch by pressing the knob on the Lever. When not in use it should be locked at this Catch.
The Infinity Catch is found only on lenses of 50 mm focal length or less.



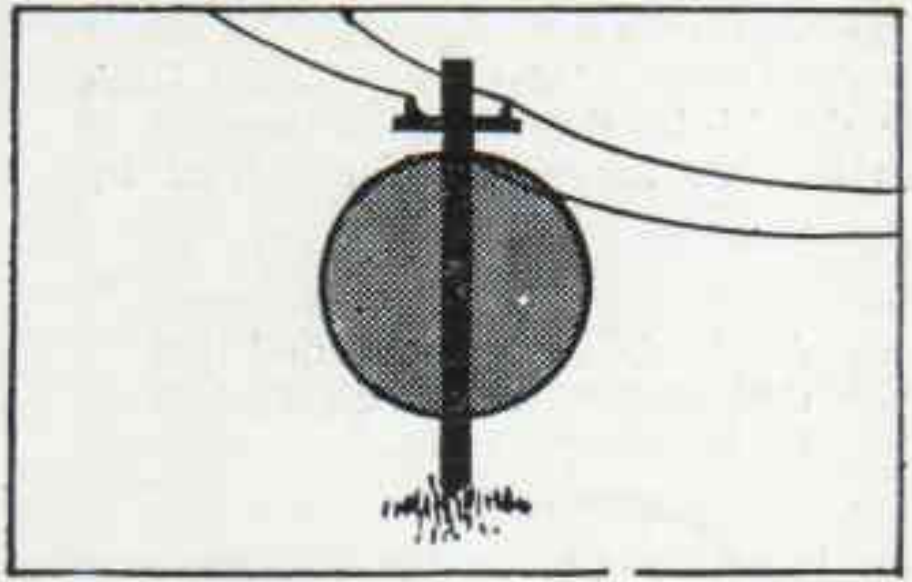


Out-of-Focus

The Lens is focused for a distance shorter than that from the camera to the subject. The Lever should be rotated so as to increase the distance.

Out-of-Focus

The Lens is focused for a distance greater than that from the camera to the subject. The Lever should be rotated so as to decrease the distance.

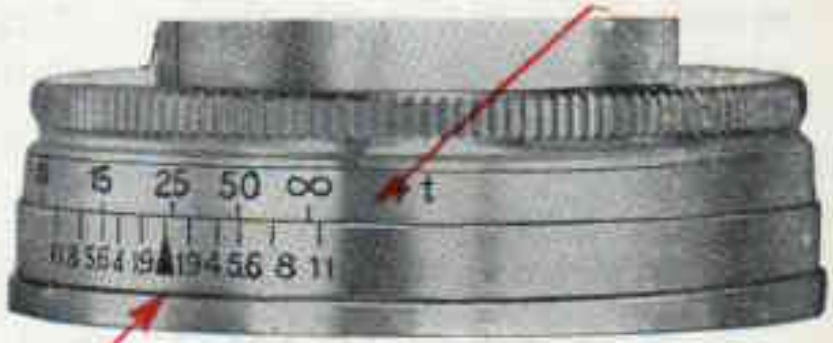


In Correct Focus

Distance Scale The figure which lies opposite the index mark indicates the distance from the film plane to the subject focused upon.

The figures on this Scale is needed to derive depth of field, and also to determine shutter speed and diaphragm opening for flash photography.

Distance Scale



Index Mark

Select a desirable shutter speed and lens opening from exposure meter readings or from directions furnished by film manufacturer. When the Canon Flash Unit is used with the camera the settings should be determined according to the table furnished with the Canon Flash Unit or to the table provided by flash bulb manufacturer.

High Shutter Speed Shutter speed of 1/25, 1/40, 1/60, 1/100, 1/200, 1/500, or 1/1000 of a second is desired, the High Shutter Speed Dial is used.

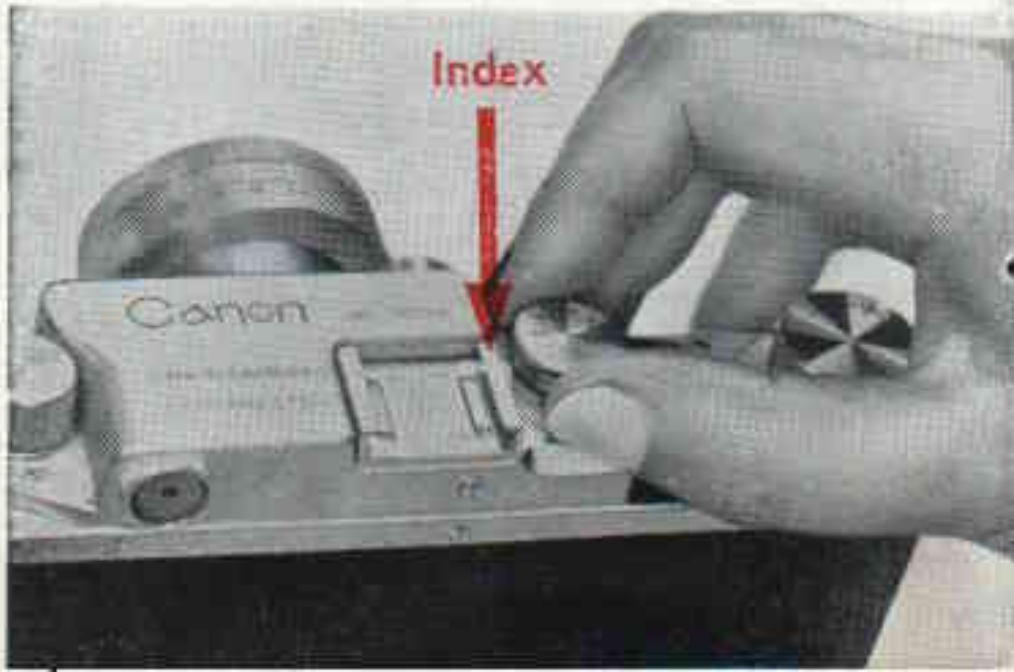
This Dial is set by slightly lifting and turning it until the selected speed is exactly opposite the index. Drop it at this point.

Before setting the shutter speed the Winding Knob should always be given one complete winding.

Intermediate speeds are not available.

25=1/25 sec., 100=1/100 sec., 1000=1/1000 sec. etc.

At 1/1000 of a second the Dial drops only a half of that of the other speeds.



Slow Shutter Speed When shutter speed slower than 1/25 of a second is needed the Slow Shutter Speed Dial is used. Turn and set the Dial to any desired point between 1/25 and 1 second. Lifting the Dial is not necessary as in the case of the High Shutter Speed Dial.

The Slow Shutter Speed Dial provides the speeds of not only 1/25, 1/8, 1/4, 1/2 and 1 second as indicated but also any intermediate speeds.

B (Bulb) and T (Time) If exposure time longer than the speeds provided by the two Dials is desired, B (Bulb) on the High Shutter Speed Dial or T (Time) on the Slow Shutter Speed Dial is used. When set to B the shutter remains open during the period the Shutter Release Button is pressed down. Set to T, however, the shutter opens when released and remains open until the Slow Shutter Dial is turned to 1—in this case the shutter cannot be closed by pressing the Button again.

When B, T and the shutter speeds slower than 1/25 second are required it is recommended that the Canon Camera Holder be used with a tripod.

When the High Shutter Speed Dial is in use the Slow Shutter Speed Dial should be set to the red figure 25, and when the latter is in use the former should be set to the red figure 25-1. Consequently, both Dials are set to 25 when 1/25 second is needed.

This procedure should be strictly observed, for if neglected it not only affects the shutter speeds but also the flash synchronization. Detail explanations on flash synchronization are given on pages from 39 to 45.

Iris Diaphragm Scale The lens opening (f-opening) is set by turning the Iris Diaphragm Scale to a desired stop. The figures on the Scale indicate the relative lens opening of the lens. The relation between the lens opening and relative time of exposure is as follows :

Lens opening	1.9	2.8	3.5	4	5.6	8	11
Relative exposure time	1	2.2	2.5	4.4	8.8	17.6	35.2

Through the table one can readily see that large lens openings are indicated by lower figures, and vice versa. When the Scale is moved to the next *higher* figure the time of exposure should be *doubled*—in other words, the shutter speed should be reduced to *one half*. And when moved to the next *lower* figure the shutter speed should be *doubled*.

If, for instance, an exposure meter indicates a shutter speed of 1/200 sec. for a f-opening of 5.6, the shutter speed must be reduced to 1/100 sec. with f-opening stopped down to 8, or if the shutter speed increased to 1/400 sec. the f-opening is set to 4, in order to maintain the correct exposure of the film.

Depth of Field Scale The range of Depth of Field lies between the two same lens opening figures provided on both sides of the distance index mark.

When one subject is sharply focused, there is a finite range of sharpness extending to the foreground as well as to the background of this sharply focused distance which is also acceptably in focus. This range of sharpness is known as the Depth of Field of the lens and depends on the relative lens opening and the distance to the subject focused upon. The smaller the opening the greater will be the Depth of Field—for a given distance. The nearer the distance, the smaller the Depth of Field for a given opening.

If, for example, a lens opening is set to 1.9 and a distance is 25 ft, the Scale indicates a Depth of Field extending from about 21 ft to 30 ft; and when the lens is set to 11, the Depth of Field ranges from about 12 ft to ∞ (infinity).

Composition and Exposure Hold the camera as shown in the picture; with both elbows pulled against your body. Compose the subject by sighting through the Range-View Finder, keeping your eye close behind the eyepiece. Make sure that the circle of the Rangefinder image is at the center of the focused subject. When the subject is properly composed, gently press the Shutter Release Button.

Shutter Release Button will not operate unless the Winding Knob is given one complete turn. Double exposures prevented.

Shaking the camera by abruptly pressing the Button is the main cause for blurred pictures.

There are two ways to hold the camera for Vertical Pictures.

First Way :

Hold the camera in your right hand with right thumb on the Shutter Release Button and the right elbow pulled against your body.

Give particular attention to prevent thumb from touching the Shutter Speed Dial—especially when gloves are worn.

Second Way :

Hold the camera as described in page 23 and rotate it to a vertical position, placing your left elbow against your body for steady support.

Range-View Finder Magnification Selector The Magnification Selector selects three different magnified Field-of-View— F, 1x, and 1.5x—for the Viewfinder. When easier and extremely sharp focusing is desired set the Selector to 1.5x by which the subject is magnified 1.5 times.

The Field-of-View of F, 1x, and 1.5x correspond to that of the "Serenar" lenses with focal length of 50mm, 100mm, and 135mm, respectively. If, however, a subject lies within a certain distance the Viewfinder will be attended with a parallax.

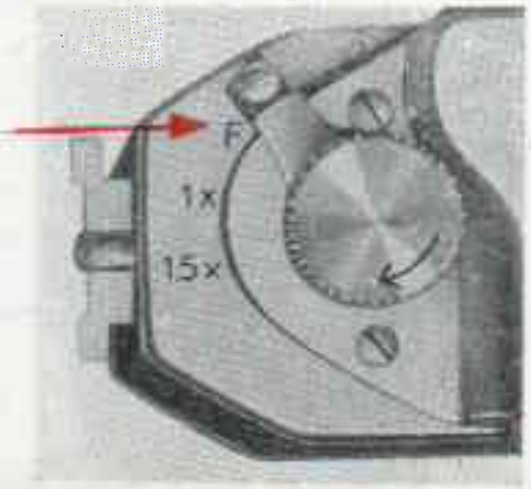
When the Selector is set to F the variation of Field-of-View of the Viewfinder and that of the lens with focal length of 50mm at different distances will be as shown as in the diagram. Although some parallax is attended with, its effect in an actual photography is negligible.

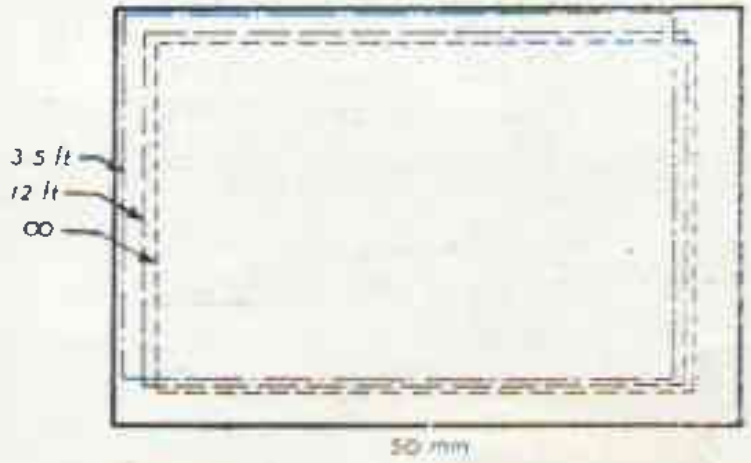
——— Field of View of the lens (50mm).

— - — - — Field of View of the finder at 3.5 ft.

— — — — Field of View of the finder at 12 ft.

- - - - - - Field of View of the finder at infinity.





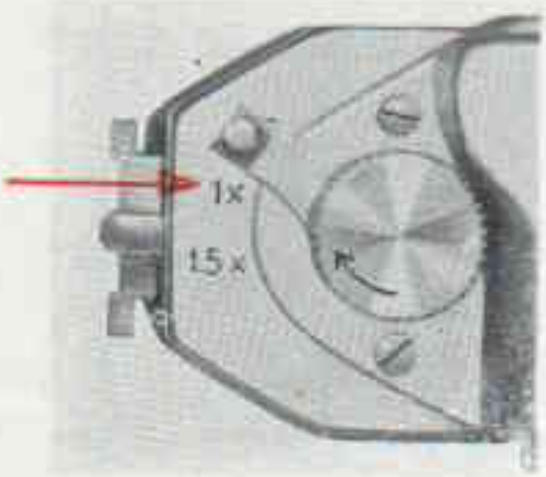
When set to 1x the variation of Field-of-View of the Finder and that of the lens with focal length of 100mm at various distances will be as shown as in the diagram. It can be noticed that when subject distance is less than 13 ft a Special Viewfinder with parallax compensating adjustment must be used.

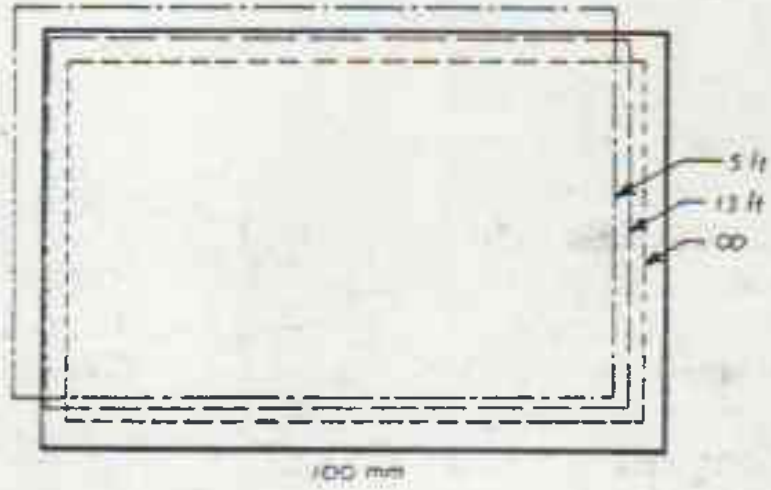
——— Field of View of the lens (100mm).

– – — – – Field of View of the finder at 5 ft.

— — — Field of View of the finder at 13 ft.

– – – – – Field of View of the finder at infinity.





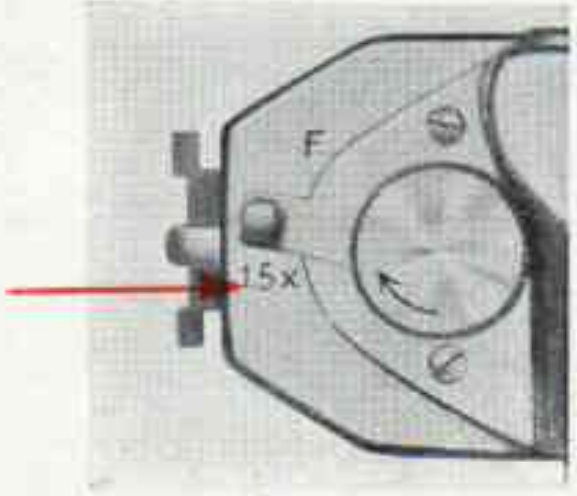
Set to 1.5x for lens of 135mm focal length, parallax at different distances will be as shown as in the diagram. Subject distance less than 14 ft, parallax-adjustable Special Viewfinder must be used.

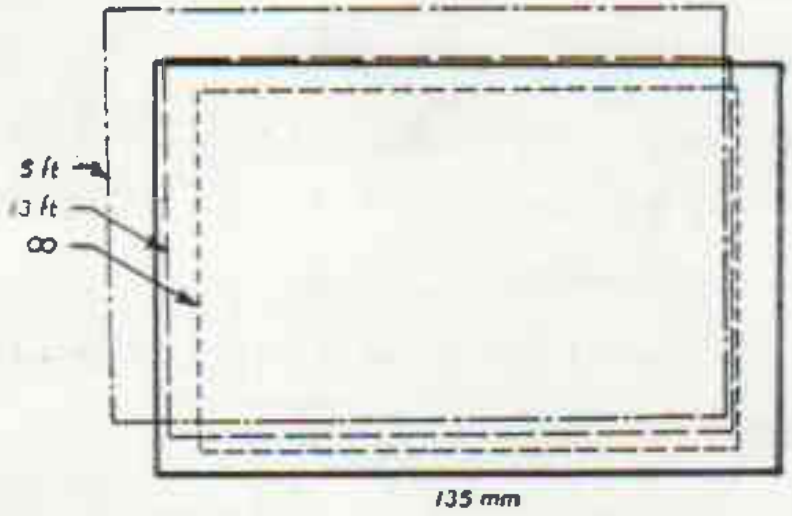
Field of View of the lens (135mm).

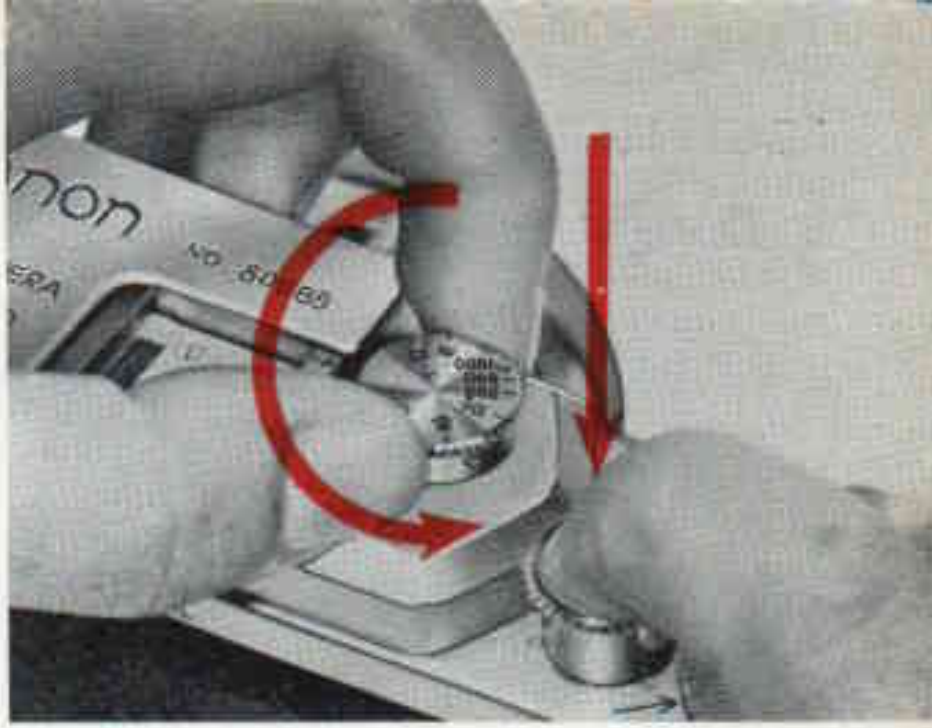
Field of View of the finder at 5 ft.

Field of View of the finder at 13 ft.

Field of View of the finder at infinity.







Double Exposure The shutter can be wound without advancing the film as when the Winding Knob is turned. Turn the High Shutter Speed Dial counter-clockwise with your left fingers while pressing the Shutter Release Button down with your right forefinger. When the Dial comes to a stop and "click" is heard release your fingers from the Button first and then from the Dial next. Now the shutter is completely wound and shutter speed may be changed if desired. Repetition of this procedure enables not only to take double exposures but as many exposures as desired on the same film frame.

This procedure is applied when checking the electrical circuits of the Built-in Synchronizer with the Canon Flash Tester.

ROUTINE

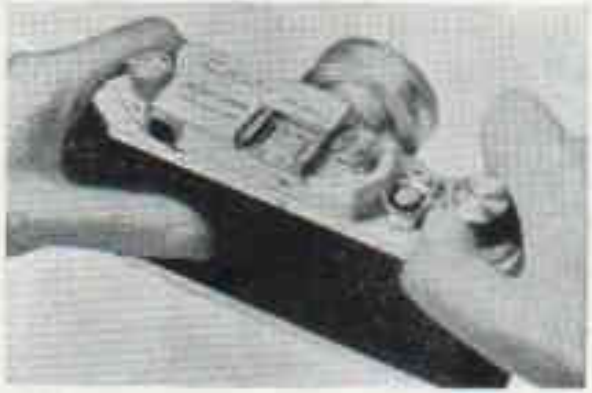
1. Remove the Lens Cap.

2. Pull out the Lens and lock it firmly in position.

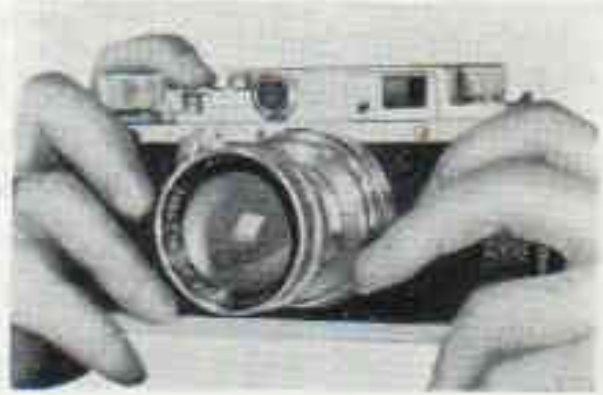
5. Set the Shutter Speed Dial according to exposure meter readings or exposure table.

6. Set the Diaphragm Scale by the exposure meter or table.

3. Turn the Winding Knob one complete turn until it stops.



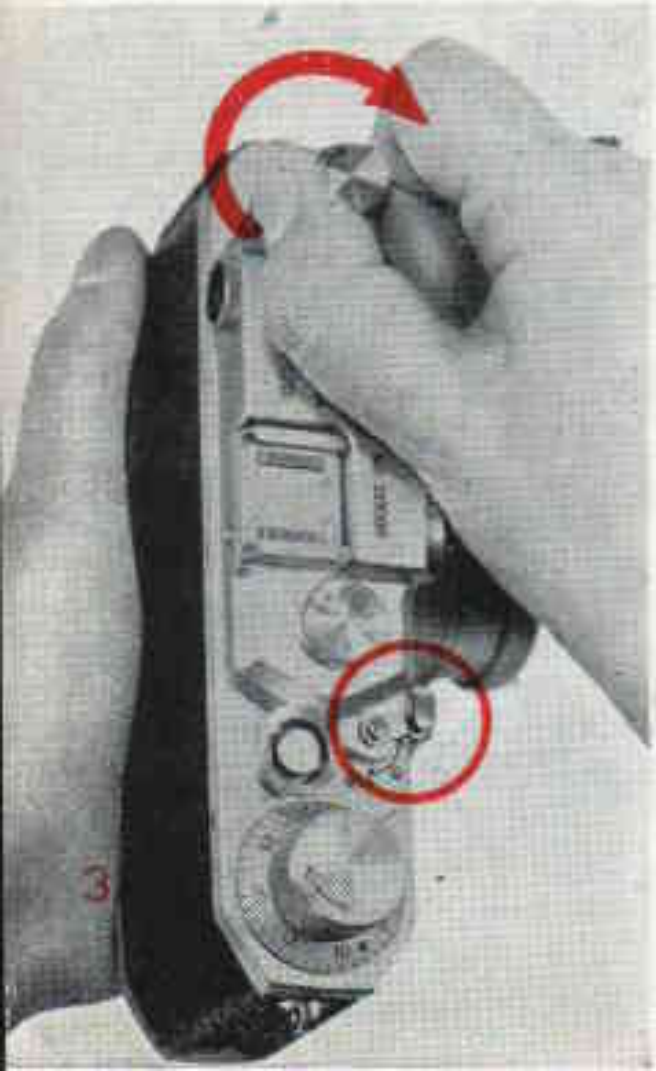
4. Focus the Lens to the subject.



7. Compose the subject. Have the circle of the Rangefinder image in center of the subject.

8. And finally, press the Shutter Release Button gently.

III UNLOADING THE FILM



Unloading When reaching the end of the film roll, the Winding Knob will no longer turn. Do not force it but stop there! And shift the Rewinding Lever to R, raise the Rewinding Knob, and rewind all the film into its original magazine or cartridge before opening the Baseplate.

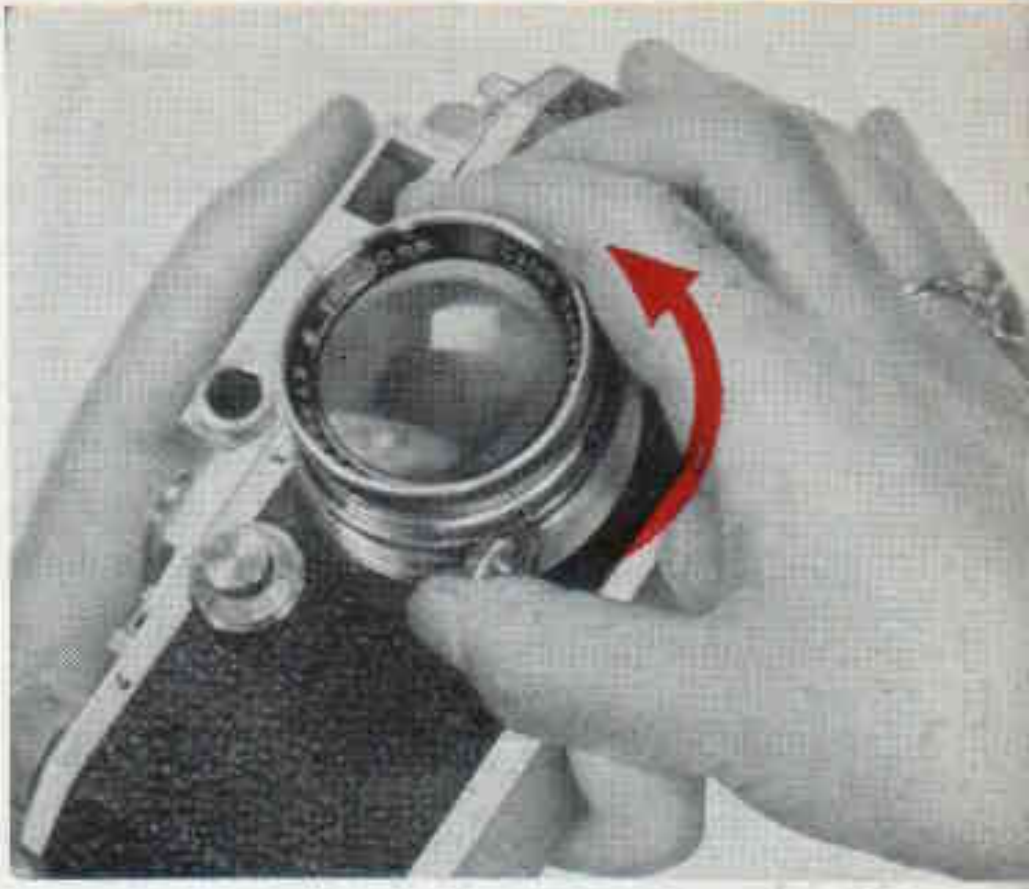
When the Canon Flash Unit is used, remove the bulb from the Unit before shifting the Lever to R, for it may fire accidentally.

During the rewinding operation the Shutter Release Button turns, and stops the moment the film is pulled off from the Take-up Spool. Give the Rewinding Knob a few more turns so that the leader will be drawn completely into the magazine or cartridge. As soon as the rewinding is completed, reshift the Rewinding Lever to A again and remove the film magazine or cartridge from the camera for developing. The Take-up Spool should, however, be left in the camera.

IV HOW TO INTERCHANGE LENSES

Dismounting Hold the camera flat in your left hand and grip the base of the lens with your right. Give a slight jerking motion at first to loosen the lens as it is firmly screwed into the lens mount. After loosened, unscrew the lens gently off the camera. Lenses having focusing levers must be locked in the infinity catch.

In order to keep dirt away and to protect the precision thread from being damaged screw the dismounted lens into the Plastic Lens Case or cover it with the Helicoid Cover.



Plastic Lens Case

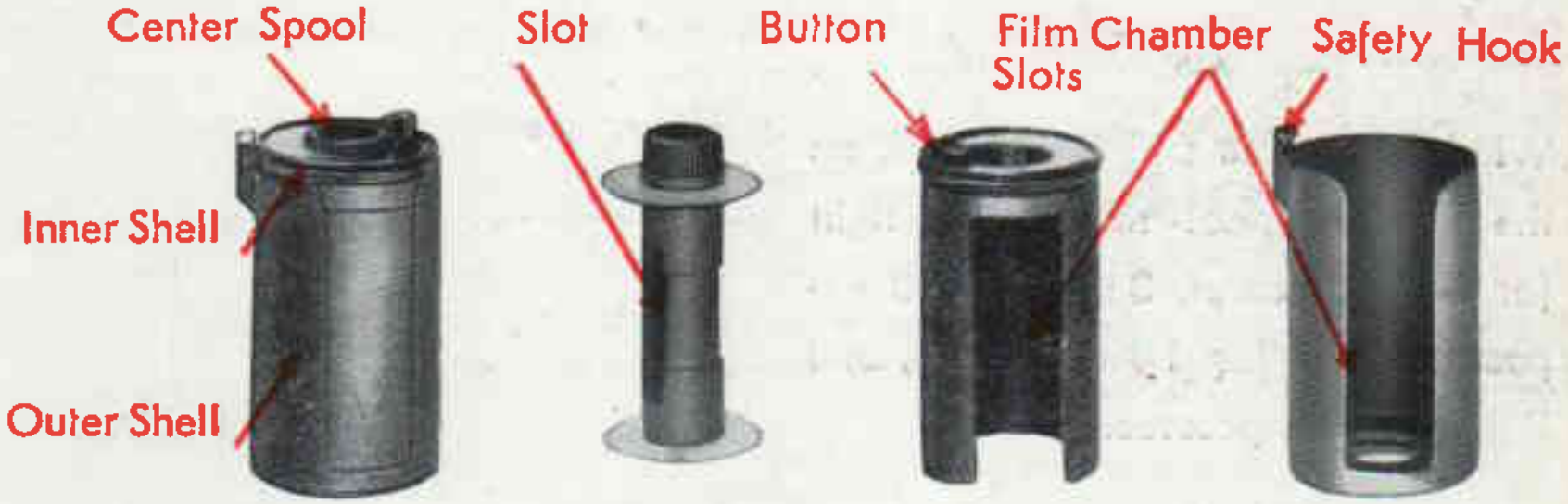
Helicoid Cover

Mounting Unscrew the helicoid cover from the lens intend to use. Hold the camera and the lens in the same manner as described in the preceding page. Search the entrance of the thread at first by turning the lens counter-clockwise slightly and then screw it gently into the lens mount until you come to a stop. When reaching this point, force fraction of an inch further so that the lens be firmly mounted. Do not attempt, however, to tighten the lens by holding any other part of the lens, but its base only—making use of the Focusing Lever or the Lens Locking Ring (in the case of long focal length lenses). When mounting lenses of collapsible type the barrel should be pulled out and locked, and those having focusing levers should have it locked in the infinity catch.

During the interchange, do not face the lens mount of the camera to strong light. It is advisable to shield it immediately with your body or by some other means while the other lens is being prepared.

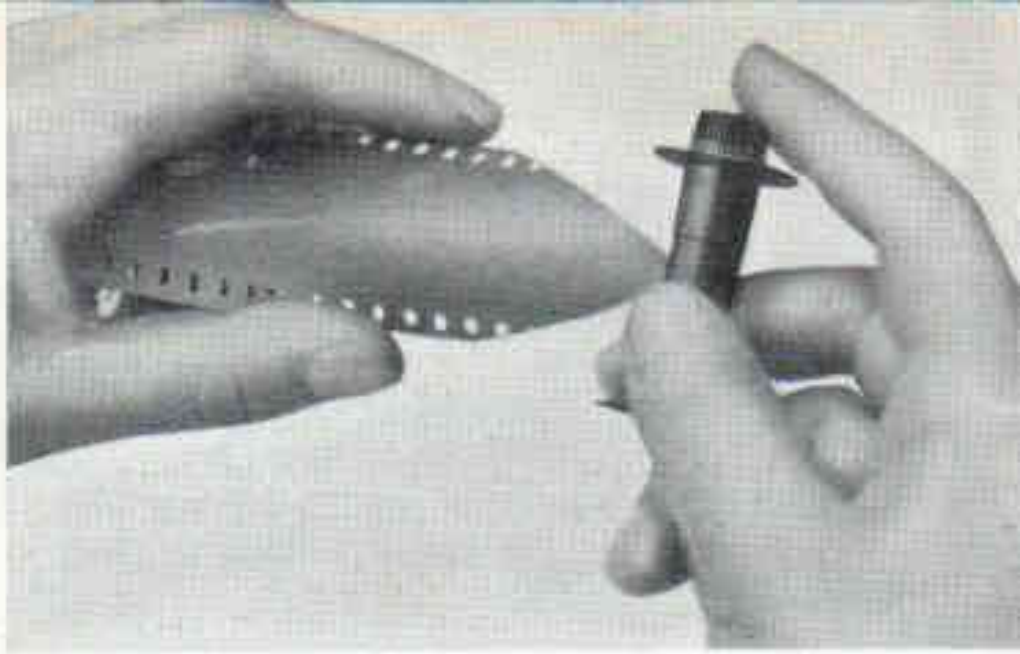
V LOADING THE Canon FILM MAGAZINE

The standard Canon Film Magazine has been prepared to hold 5¼ feet of 35mm film which is sufficient to make up to 36 exposures, 24×36mm in size. This cylindrical magazine consists of three parts: the Center Spool, the Inner Shell, and the Outer Shell. To disassemble the film magazine press the Button of the Inner Shell and turn it until its groove overlaps with the Safety Hook.



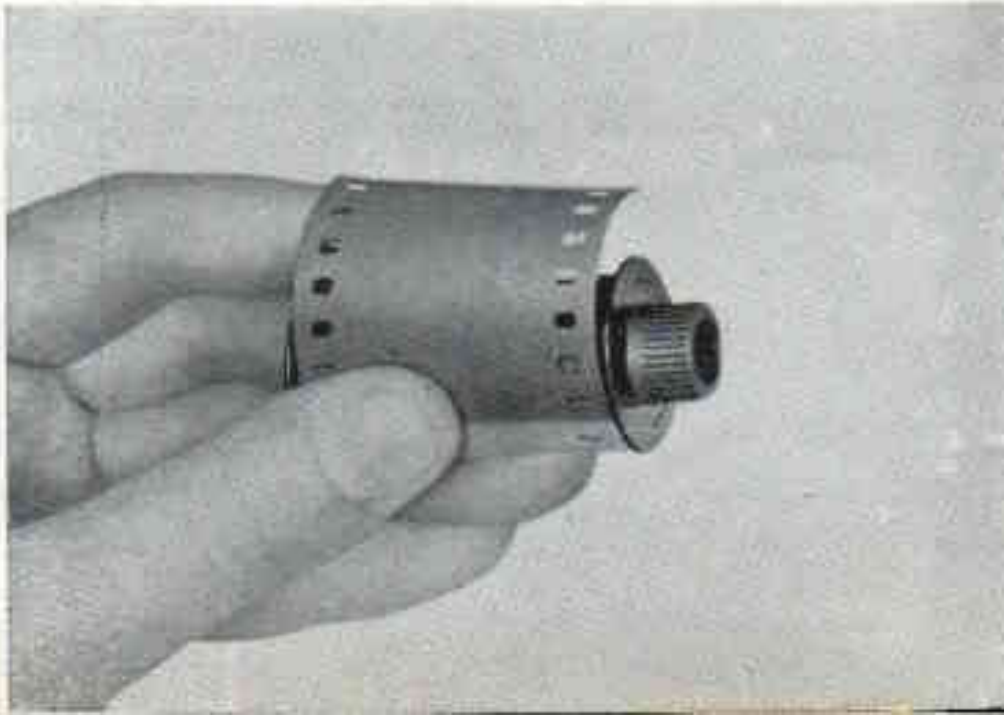
Assembled Film Magazine | Center Spool | Inner Shell | Outer Shell

Hold the Center Spool in the right hand and insert the short tapered end of the film into the slot, facing the emulsion (dull) side towards the spindle of the spool.



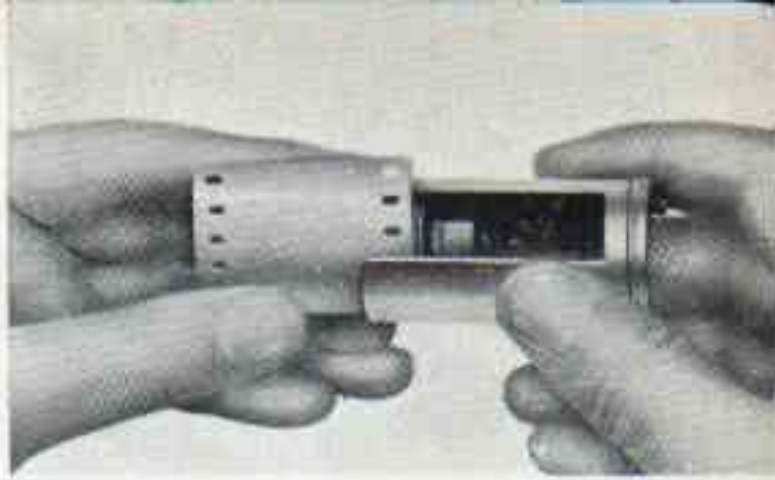
Wind film about 5¼ ft in length on the Center Spool moderately tight for 36 exposures, 3¼ ft for 20 exposures, 3 ft for 18 exposures, and 2 ft for 10 exposures.

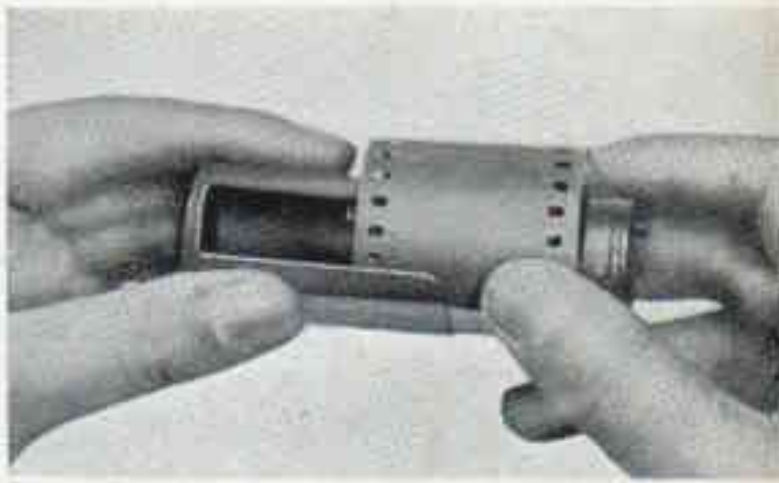
Do not touch the emulsion side of the film when winding.



To assemble the magazine, first insert the Center Spool into the Inner Shell with the beginning of the film lying out from the film chamber slot. Next, introduce the Inner Shell together with the Spool into the Outer Shell with both film chamber slots superimposed. When the Inner Shell is completely inserted turn it counter-clockwise until the button clicks into locked position.

This procedure must be done in a dark-room with proper safe-light or complete darkness depending on recommendations of film manufacture.





When the Film Magazine is properly loaded and positively locked pull the film out and trim it as illustrated below, giving special attention to the red circled area.

VI BUILT-IN FLASH SYNCHRONIZER

The Flash Synchronizer concealed within the body of the Canon Camera Model IV is so assembled as to synchronize accurately with not only flash bulbs of focal plane type, but also of all peak types (made not for focal-plane shutter but primarily for between-the-lens shutter). Speedlight unit can equally be used provided the unit has a device with which discharge timing can be delayed between the range of 15 and 100 milliseconds*.

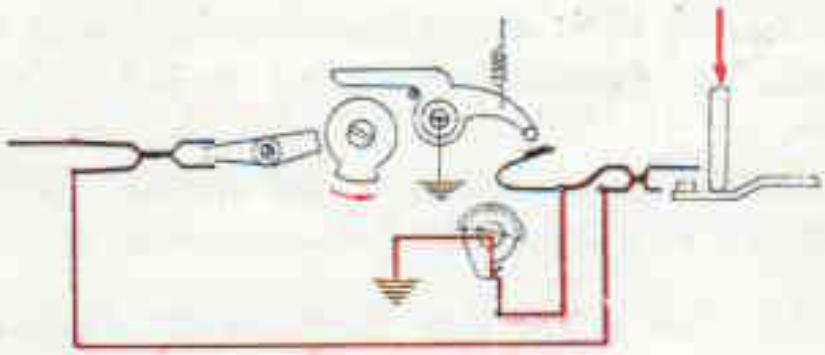
The synchronizer consists of two electrical circuits: one is the High Shutter Speed Circuit using shutter speeds from 1/25 to 1/1000 sec. for focal plane bulbs such as GE No. 6, 31; Sylvania FP-26, 2A, etc.; and the other is the Slow Shutter Speed Circuit using 1/8 sec. (or slower) for various peak type bulbs such as GE No. 5, 11, 22, SM; Sylvania No. 0, 2, 25, 40, SF, etc.

Open page 52 for schematic diagram of the Built-in Flash Synchronizer.

High Shutter Speed Synchronization When the shutter release button is pressed the closure of contact C and the movement of the first curtain occur

* 1 millisecond=1/1000 second

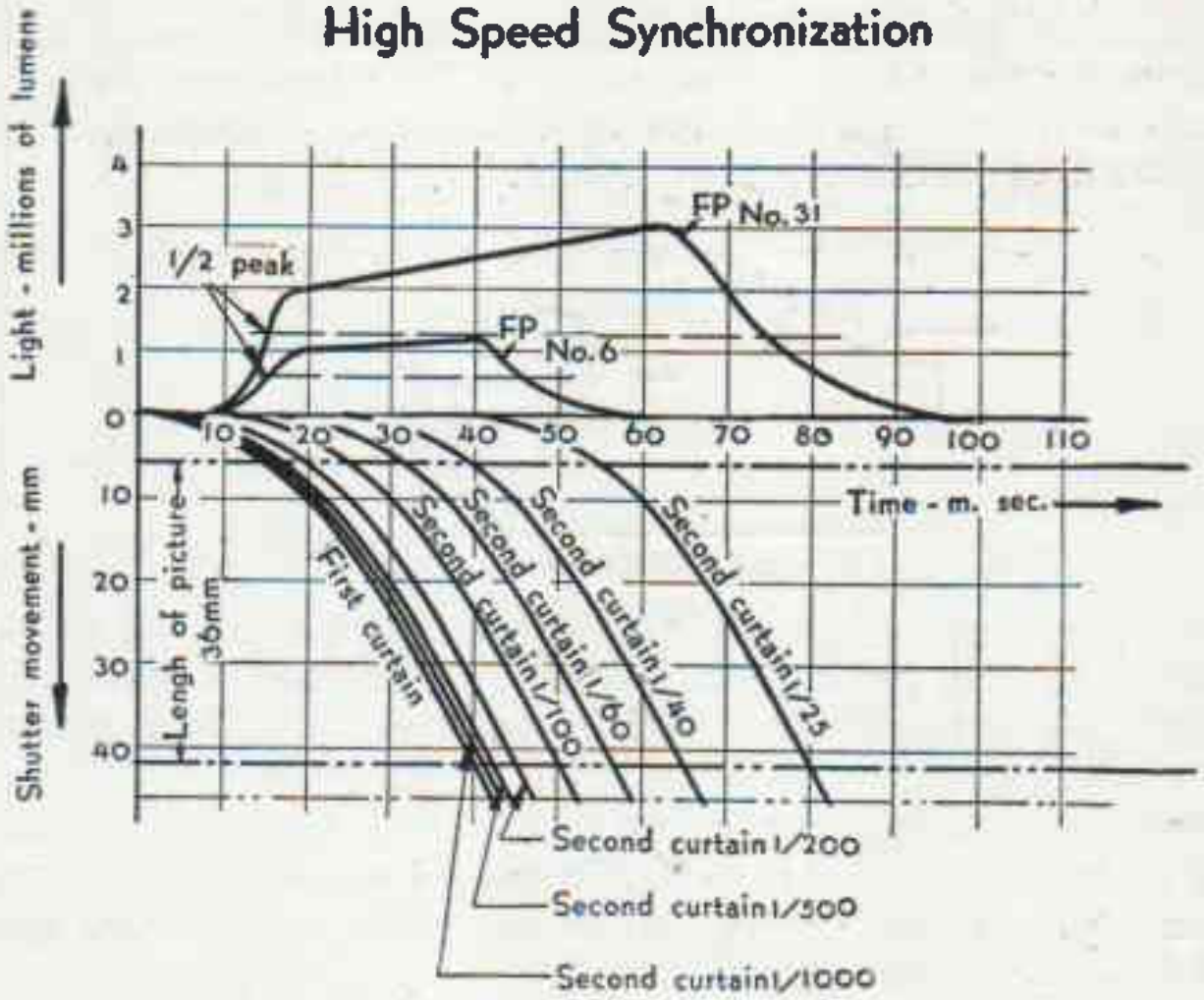
simultaneously through the counter-clockwise rotation of the shutter shaft to which the cam x is connected ; thus the High Shutter Speed Circuit as indicated in red line in the diagram below is established and flash bulb will be discharged with perfect synchronization with the shutter.
The relation of synchronization between the movements of the shutter and the illumination of the focal plane bulbs are outlined in characteristic curves on next page.



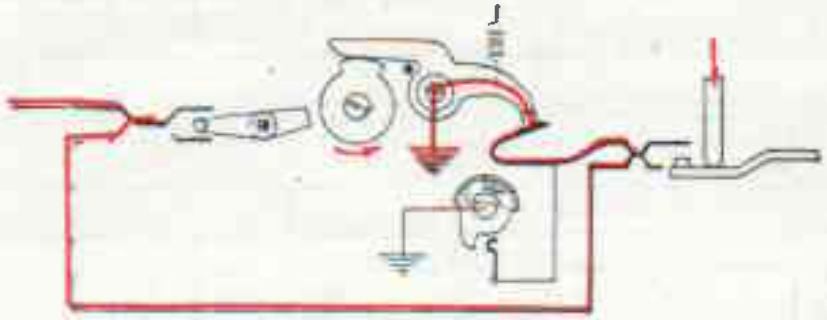
High Speed Synchronization

Through this chart it will be noticed that the most practicable shutter speeds for flash bulbs No. 6, FP-26, etc. are from 1/100 to 1/1000 sec., whereas for No. 31, 2A, etc. the speeds are from 1/25 to 1/1000 sec.

High Speed Synchronization



Slow Shutter Speed Synchronization In the case of peak type bulbs, due to their characteristics, the picture frame must be totally opened at the time of discharge in order to obtain perfect results. Therefore, the shutter speed dial should be set to 1/8 sec. for bulbs of this type. Consequently, the circuit will be as shown as in the diagram below.

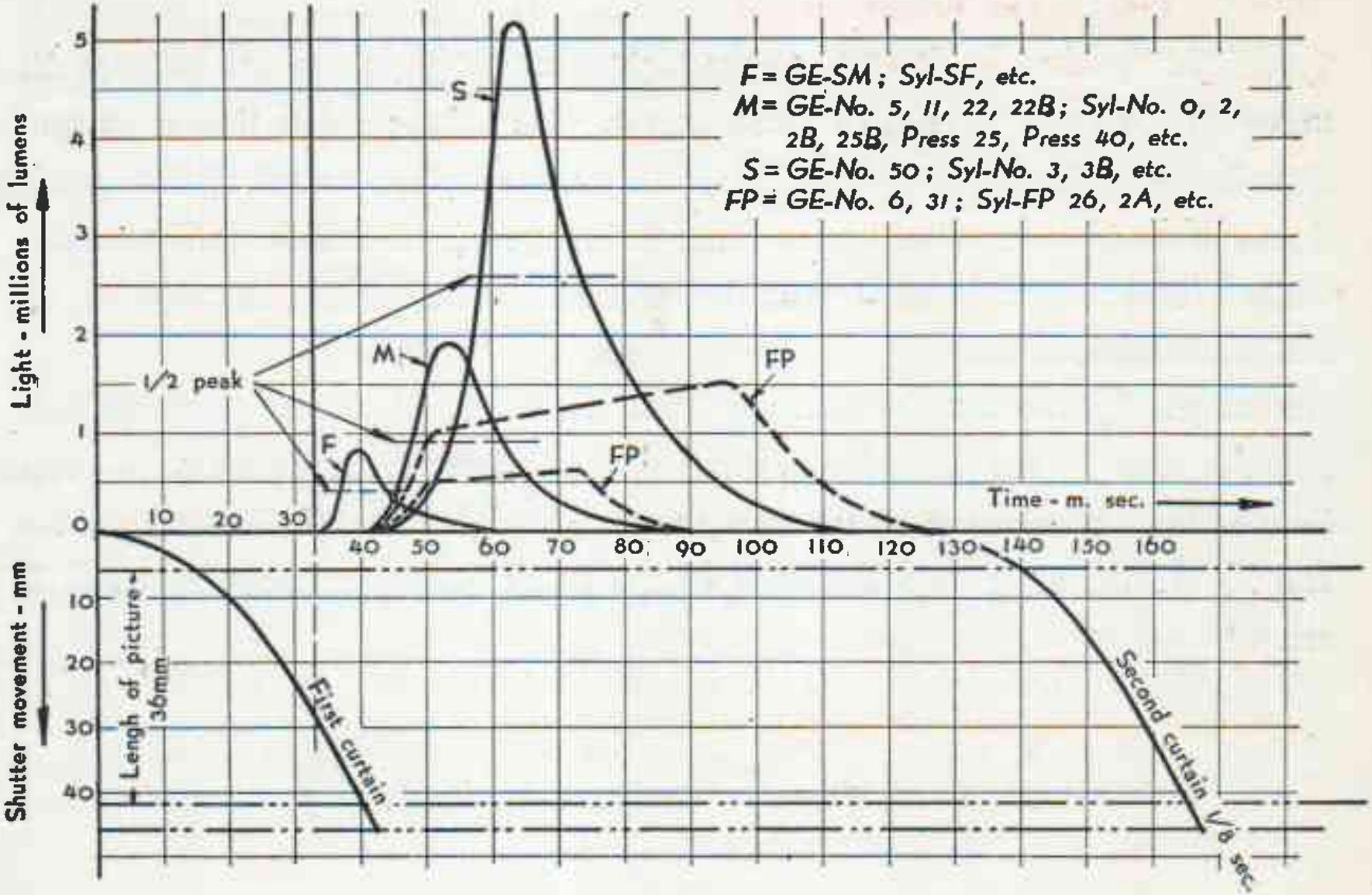


Slow Speed Synchronization

The relation of synchronization between the movements of the shutter and the illumination of the peak flash bulbs are outlined in characteristic curves on next page. From the chart it will be noticed that focal plane bulbs can be used as well.

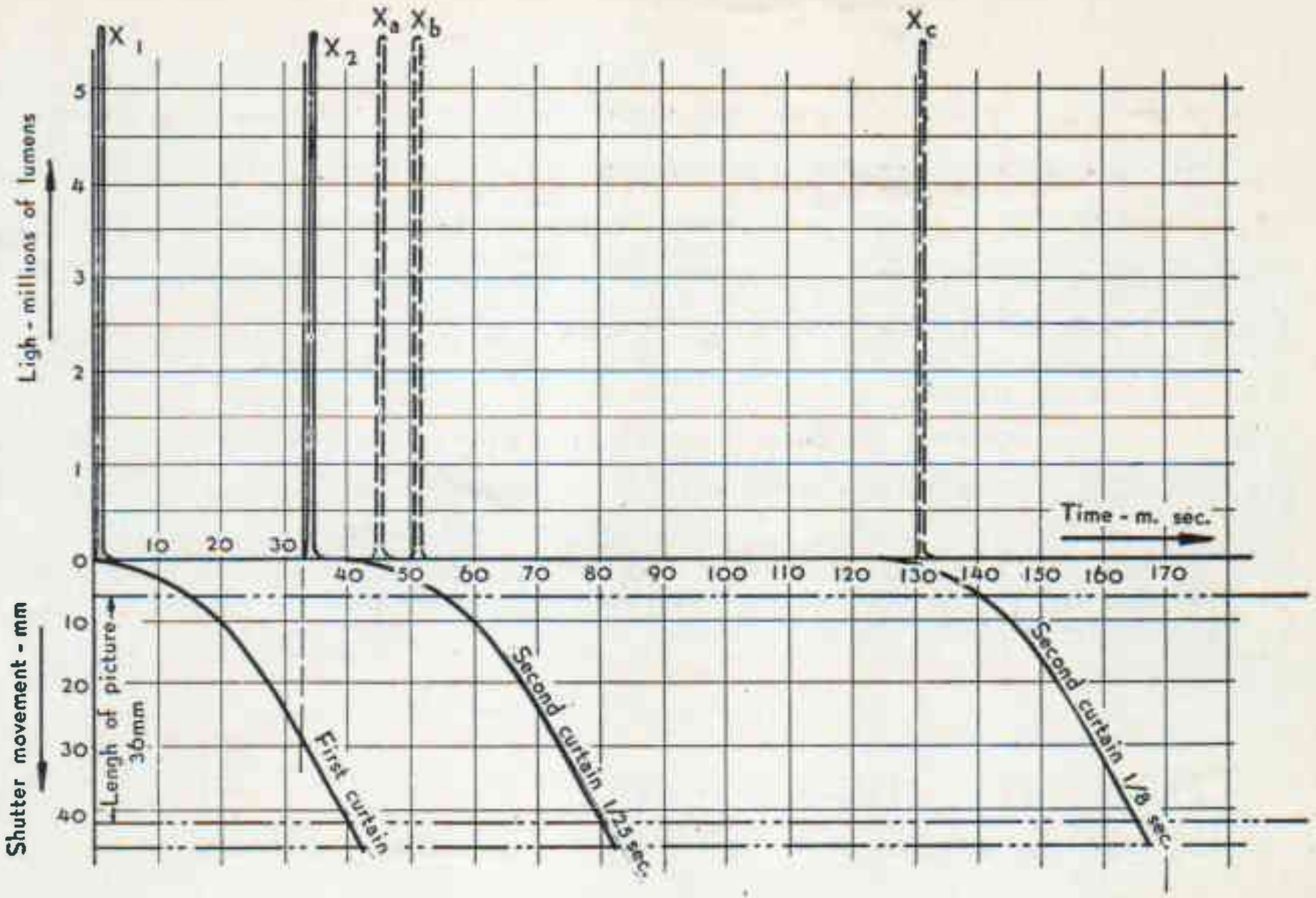
When reaching the end of the film roll, make sure to remove the flash bulb from the flash unit before turning the rewinding lever to R, as one of the two or the both circuits might cause the bulb to be discharged.

Slow Speed Synchronization



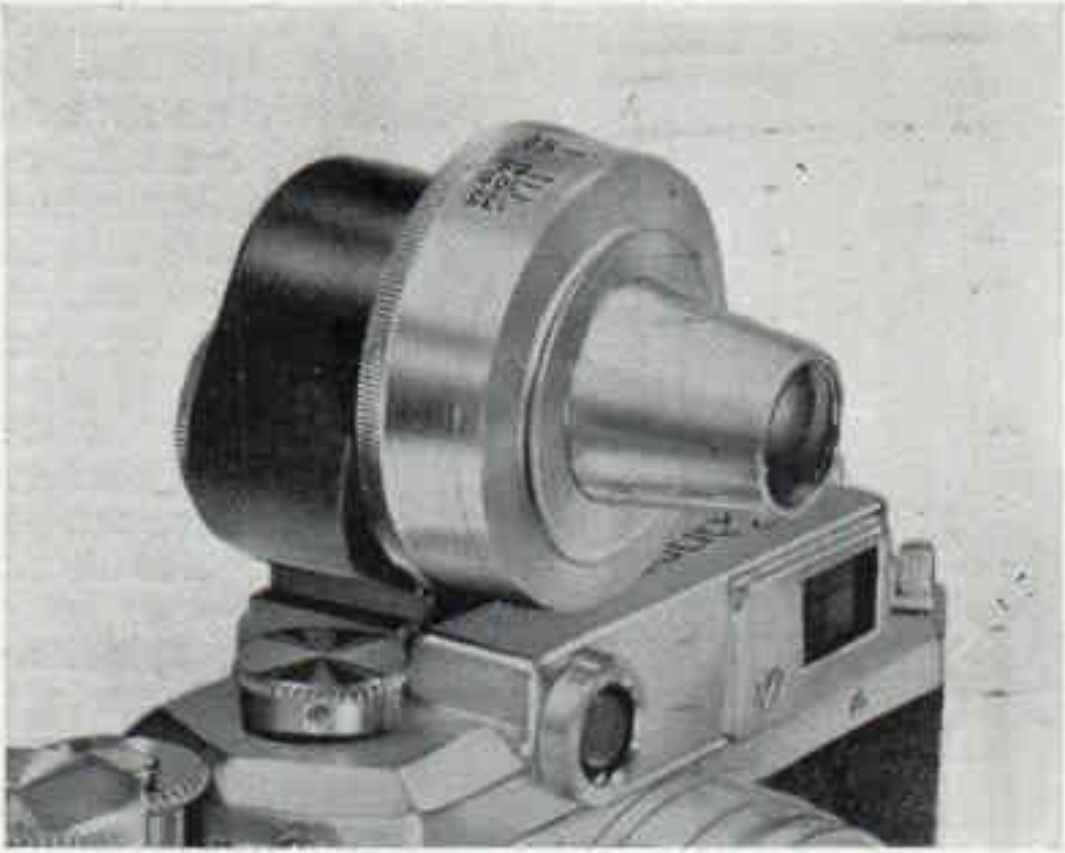
Speedlight Synchronization For speedlight photography there are two speeds to which the shutter speed dial can be set, with proper delay timing to synchronize with the shutter. If 1/25 sec. is used a delay control of the speedlight unit must be adjusted to lie within the range of 45 and 50 milliseconds; while 1/8 sec. is desired it must be adjusted to be within the range of 15 and 100 milliseconds.

The above figures can be derived from characteristic curves given on next page. X_1 and X_2 are flashed with delay of 0 millisecond, respectively. X_a and X_b are the two extremes of the delay range for high speed (1/25 sec.) and X_a and X_c are the other two extremes of the delay range for slow speed (1/8 sec.).


X 1
X 2
X a
X b
X c
Ligh - millions of lumens
5
4
3
2
1
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
Time - m. sec.
Shutter movement - mm
10
20
30
40
Lengh of picture 36mm
First curtain
Second curtain 1/25 sec.
Second curtain 1/8 sec.

Canon SERENAR Interchangeable Lenses

f : 3.5	f : 2	f : 3.5	f : 1.9	f : 4	f : 4
35 mm	85 mm	50 mm	50 mm	135 mm	100 mm

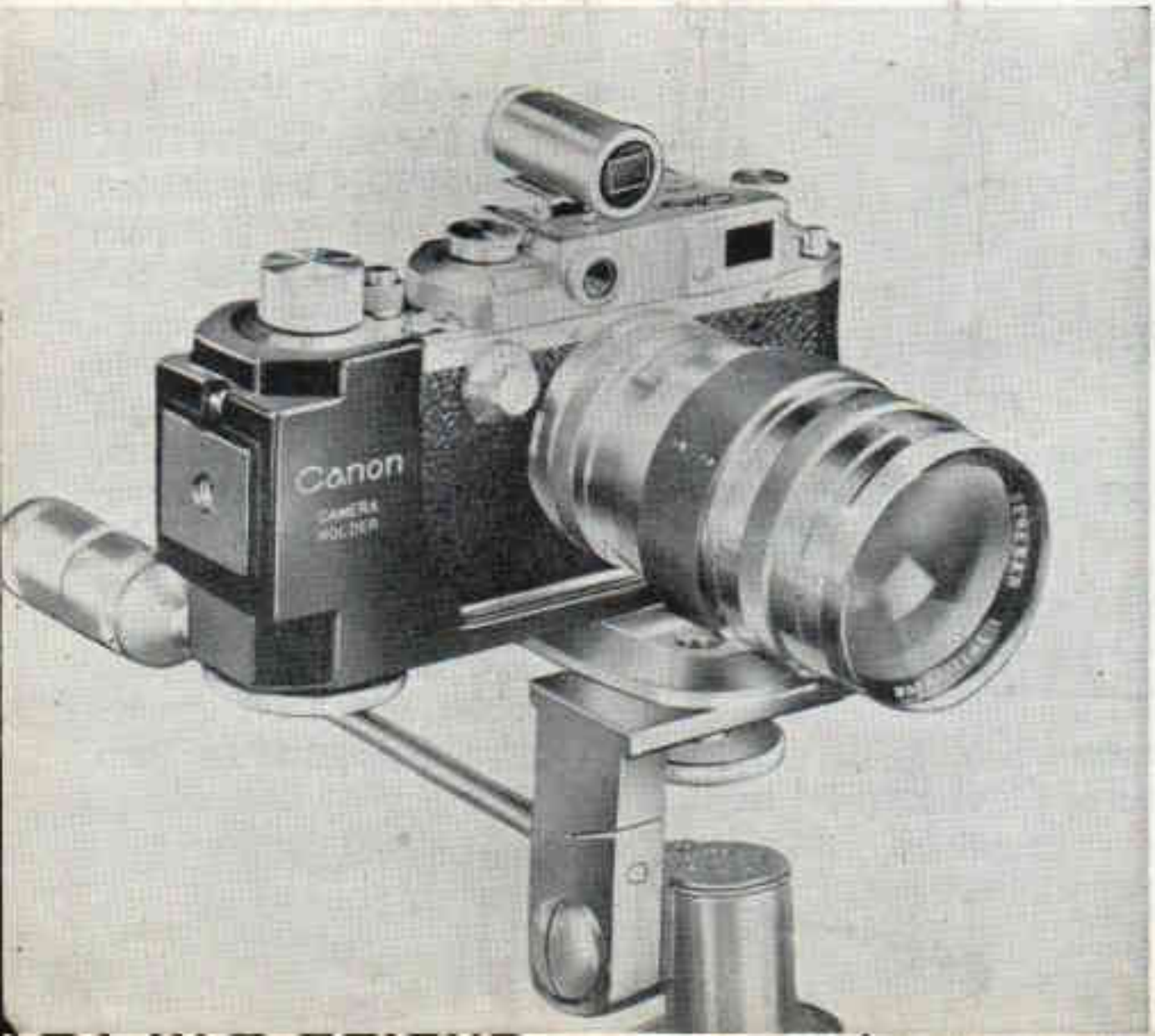


Canon UNIVERSAL VIEWFINDER

The Canon UNIVERSAL VIEWFINDER is a precision instrument through which an exceptionally sharp and erect image can be viewed with field of view variable for lenses with focal length of 35 mm to 135 mm. Click stops offer positive setting at any particular focal length marking and parallax compensating scale, calibrated in feet, enables accurate parrallax correction. The Canon UNIVERSAL VIEWFINDER is an indispensable item for one having lenses of different focal length.

(will be available later)

Canon CAMERA HOLDER



The Canon CAMERA HOLDER is to hold the camera sturdy in a balanced position when using a tripod ; as the tripod socket arranged on the baseplate of the camera is completely off-center. The camera can be easily seated either vertically or horizontally. Additional tripod sockets may be used for mounting the Canon Side Lighting Units. Ideal accessory for close-up and telephoto shots.

BRIEF HISTORY OF *Canon* CAMERA COMPANY INC.

Canon Camera Company, Inc. was first established as the Canon Research Institute in the year of 1933 for the object of studying and manufacturing the best miniature cameras in this country; and in 1935, through an intensive research and design, the very first model, named as "Canon" was produced and put on market with pride and confidence.

Each month thereafter, Canon Camera Company Inc., without being intervened with the past international affairs, continued to improve the quality and to increase the production of its own line of camera—the 35 mm "Canon" camera.

In 1946 the company was compelled to enlarge for the purpose of substantiating the factories and of manufacturing not only better "Canon" cameras but also various interchangeable "SERENAR" lenses for the "Canon" cameras in order to meet the public demand.

Thus, Canon Camera Company Inc. is equipped with various superfine precision machineries, testing instruments, and operated by number of top grade engineers, technicians, designers, and craftmen whose lifelong experience and skill enable to produce the "Canon" cameras originating from optical glass dissolving, lens grinding to shutter and metal piece assembling with modern streamlined operation.

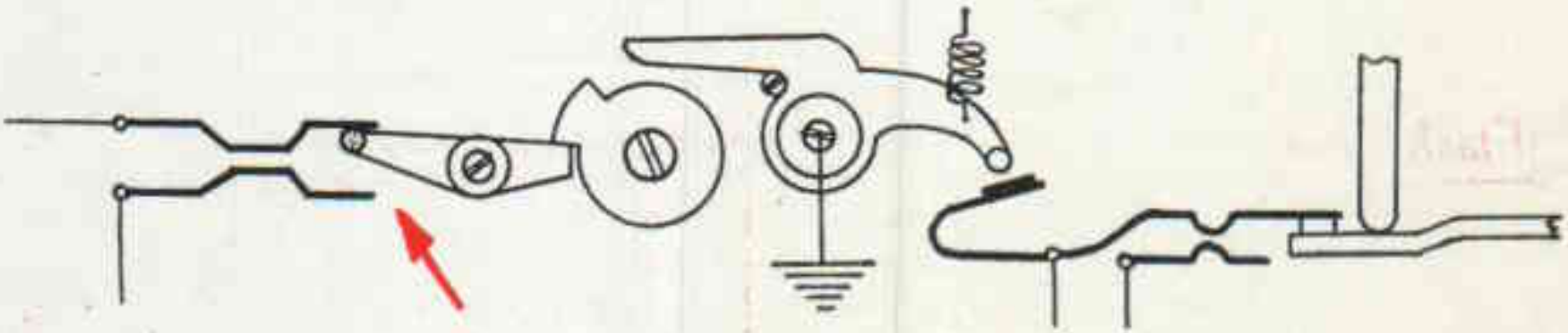
Hence, Canon Camera Company Inc. is given credit for being the largest camera company with the longest history and the greatest reputation in this country.

Legend

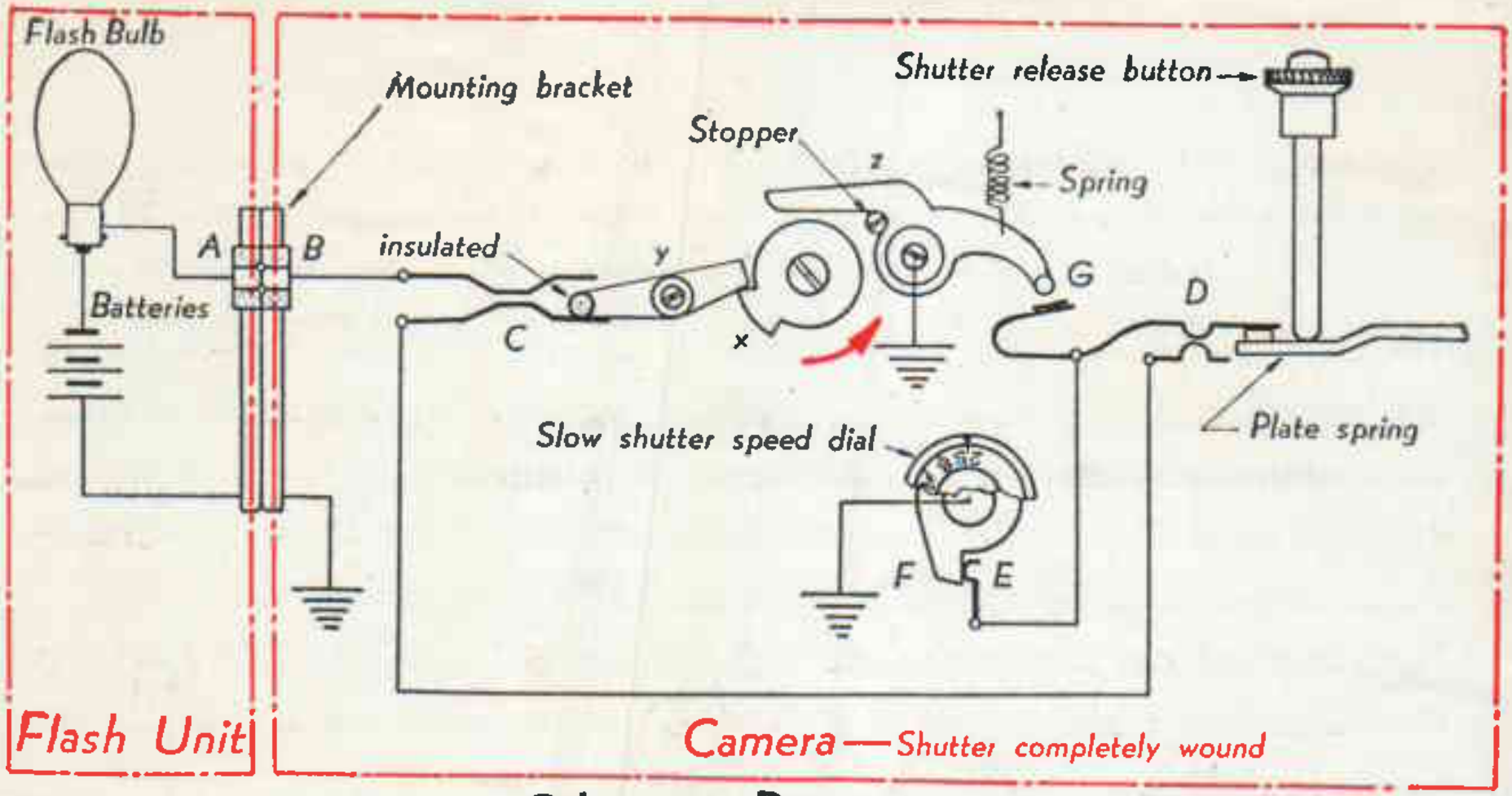
x. Cam—connected direct to shutter shaft (shaft of High shutter speed dial).
y. Lever—set in free into its axis.
z. Lever—pulled against stopper with fine spring.
A. Terminal—to be connected to synchronizer.
B. Terminal—to be connected to flash unit.
C. High shutter speed contact—closes instantly with its own elasticity when lever y is freed the moment the cam x begins its rotation.
D. Safety device—switches off by plate spring of shutter release button and, switches in instantly with its elasticity prior to shutter movement when shutter release button is slightly pressed and plate spring pushed away. During the cocking motion, although contact G and C close successively by clockwise rotation of cam x, flash bulb will not discharge as this contact is open.
E. Terminal—when ground through F the high shutter speed circuit will be established, and when cut off the slow shutter speed circuit will be established.

F. Automatic circuit selector—coupled with slow shutter speed dial. When this dial is set to 25 for high shutter speeds the selector contacts E and high shutter speed circuit will be set up; when set to 8 or beyond, the selector will be isolated from E automatically and slow shutter speed circuit will be set up.

G. Slow shutter speed contact—closes instantaneously when lever z is kicked by cam x after about 2/3 of its total rotation.



Shutter completely released



Schematic Diagram
of
Canon Model IV

BUILT-IN FLASH SYNCHRONIZER *

* U. S. PAT PEND.

BUILT-IN SYNCHRONIZER

The SYNCHRONIZER, thoroughly checked and accurately set before leaving the factory, is of a precision built mechanism using the very best materials. All electrical contacts are of platinum-iridium alloy in order to attain lifelong maximum conductivity. Under any circumstances, the housing of the SYNCHRONIZER should never be opened and the mechanism tampered with.

Periodic check can simply be done with the Canon Flash Tester by following the instructions given on pages 44 and 45 in the Instruction Booklet for the Canon Flash Unit.

canon

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